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THE
DENTAL REVIEW

DEVOTED TO THE ADVANCEMENT OF
DENTAL SCIENCE

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EDITOR

VOL. XXIV

CHICAGO:
PUBLISHED BY H. D. JUSTI & SON
55 STATE STREET
1910

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THE

DENTAL REVIEW.

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THE TECHNIC PERTAINING TO THE CONSTRUCTION OF METALLIC BASES FOR FULL DENTURES.*

BY W. D. N. MOORE, L. D. S., D. D. S., CHICAGO.

The uncertain results accompanying the practice of this part of dentistry, has not universally stimulated the enthusiasm that has been experienced in other branches of our profession. The fact that such a wide range of conditions exist in human mouths would alone account for many different results. To meet these conditions many theories have been advanced as to the best methods to pursue to accomplish success. A full appreciation of their value has been realized. We could scarcely hope to accomplish all that might be attained without a full knowledge of the theory pertaining to this work. However, theory alone would avail nothing. A necessary adjunct is careful technic. To accomplish the best results theory and technic cannot be separated, one depending on the other. Indifferent technic has been the parent of many failures. It has no place in any part of dentistry, and yet it is so prevalent that we must be charitable to avoid discouragement. It is therefore important that at no time in the whole procedure of this work, should this one essential be overlooked, and it is at all times imperative, if success is to be attained.

As important as "the rock for the wise man's house" is a good impression of the mouth for which the metal base is to be made. This part of the subject was well and fully presented to this society a short time ago in a paper by Dr. Bullard. Time permits only reference to a few of the more important details. It is preferable to select a tray that conforms to the shape of the mouth and is sufficiently large to include ample area on which the base should rest, and to allow a uniform thickness, about one-quarter of an inch, of impression material between the tissues and the tray. This will usually necessitate shaping and cutting the tray to fit the labial and buccal parts of the ridge at the attachment of the muscles. In case of a lower, the tray should extend well down on the lingual sides of the ridge and well back. Failure to accomplish this is too common and the most favorable means of retention of a lower base, especially if the ridge is not prominent, is lost. The use of too much impression material is a serious mistake. The excess should be forced out anteriorly instead of posteriorly. Building a ridge of wax at the posterior edge of the tray will prevent, in a large measure, the impression material squeezing out over the soft palate. It is generally conceded that plaster of Paris is the most reliable material at our disposal with which to obtain the most accurate impression. It is a well known truth that plaster of Paris expands on setting and this is probably its greatest fault. The profession owes much to Dr. Prothero for the good work he has done to enlighten us of this fact, and the means by which it may be more or less controlled, upon careful manipulation. It has been claimed that the expansion of a good grade of French's plaster is not sufficient to account for a misfitting denture, yet, if precautions are not taken in the handling of it in each particular, the best results are not likely to follow. When adding plaster to the water avoid stirring, also the use of any accelerating agent. To dispense with the latter in taking an impression would not be for the comfort of the patient. In making models, however, these details can be observed. The impression should be relieved where necessary to permit a uniform adaptation of the base to all parts of the tissue on which it is to rest. Only a careful examination of the mouth as to what places are hard or soft, will determine where and how much relief should be made. This same purpose can be accomplished later, though not so readily, by adding tin foil to the metal die. It is preferable, however, to relieve the impression and when the base is fitted in the mouth, should it require further relief in any part, tin foil can then be used on the die where any changes are desired. All the preparation required of the impression should be done upon its removal from the mouth and at once filled with plaster properly manipulated. According to investigation a good quality of plaster will set to maximum hardness in twenty-five minutes.

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*Read before the Chicago Odontographic Society, October 19, 1909.

The model and impression should then be separated and if it is impossible to do this at this time, the tray should be removed to permit of a uniform expansion. Tests have shown models left unseparated from the impression in the tray for some time, to expand vertically leaving a space between impression and model due to the tray preventing a lateral expansion. The model should be neatly trimmed and made smooth by the use of soapstone to facilitate removing it from the sand in which the metal die is made. The model should be carefully examined as to whether or not it possesses any undercuts which will determine the kind of moulding ring to be used. Too often small undercuts are filled with wax in order to make the operation easier at the expense of accuracy. If there are any projections whatever on a model that will not permit of its removal from the moulding material without resistance, a sectional ring should be used. Its use is too often neglected perhaps on account of the patience and time required. In cases of undercuts on the lingual of a lower model, cores should be made in order to secure a perfect reproduction of the plaster model. A good quality of moulding material is necessary. In packing it about the model, care should be taken to have the material firmly but uniformly pressed in the flask. Avoid the use of a moulding material that is overcharged with any moist substance.

The metals commonly used for making a die are zinc and babbitt metal, a composition of copper, antimony and tin. Zinc possesses much strength, offers a smooth surface, but its shrinkage is marked. The use of metals that change shape are usually considered unsafe for this work. Dr. Goslee has taught that this shrinkage is an advantage in cases having a flat palate, claiming the contraction counteracts the expansion of the plaster. Where the palate is high the contraction of the metal causes a drawing together at the posterior ends of the ridge, giving an imperfect die. Babbitt metal has a wider range of usefulness since its shrinkage is slight, even if it does not possess the strength or smoothness of surface that zinc does. The metal for a die should not be poured while hot, but as cool as will permit of its pouring. It is well to have at least two dies of each case. The counter die, if one is to be used, is made of lead or some composition of it. Acknowledging faultless technic thus far, apart from any change due to the relief made on the impression, we can scarcely expect the die a perfect reproduction of the mouth from which the impression was taken. True there may be a very slight and inappreciable difference, but nevertheless there is a difference, for the reason that the plaster in the impression expanded on setting. Following this, the plaster in the model expanded and the metal making the die contracted, which, while favorable, is not known to compensate for the two expansions that have preceded. Add to this a lengthy course of procedure, however accurate in each detail, must result in further diminutive changes. This, then, would justify a simpler method. Much could be gained by making a die from the impression direct. This can be done with success and is more commonly practiced in Europe than here. So much can be claimed for this method that it is destined to be regarded as the better practice. Spence's metal is poured into the impression to form the die. It is true that Spence's metal does not possess the strength offered by babbitt metal, but when we consider the swaging to be done on it is accomplished by a mechanical swager having an hydraulic pad acting as the swaging medium, the strength it possesses is sufficient to withstand the strain. Being supported on all sides by an equal pressure as only an hydraulic medium will do, the die is not required to offer as much resistance as the other means of swaging demand. The use of the counter die has for many years, and is yet, commonly used for the purpose of adapting the base to the die. If the die is free from undercuts, good results can be obtained by its use. If undercuts prevail, the base must be adapted to these parts by the use of the mallet or burnisher. The use of a counter die may distort a die or even fracture it as well as alloy a gold or platinum base. A better means of adaptation can be gained by using a mechanical swager such as the one made by Claudius Ash & Son. After the base has been partially adapted by the use of a mallet and covered with thin rubber, it can then be placed in such a device under a yielding material such as small shot or corn meal and the powerful leverage offered, twenty to thirty tons pressure, can be brought to bear upon the base. This weight is well distributed over the base no matter what form the die may be. By its use there is not the tendency to make the metal in the base "harsh" or to cause any "spring," as in the use of the counter die. The hydraulic swager should offer advantages over this however. By such a swaging medium as oil, there is bound to be a uniform pressure on all parts of the base. In addition, there would be less friction, thereby overcoming the same resistance with less force. This affords an opportunity to use a die possessing less strength than babbitt metal, and one that might be obtained from the impression, providing it would be a reliable material. It is towards simplifying methods that much can be gained in this work. The cast aluminum base has in a great measure superseded the swaged style of base and the same promises to be true in regard to gold. Full gold bases have already been cast and with perfection of methods and appliances, the casting of gold bases for full dentures is certain to become a universal practice. On account of its high fusibility the same is not so likely to be predicted for the platinum base necessary for continuous gum work. Until the casting of gold bases for full dentures is more certain of accurate results, we have to stand by the means that have served us so long.

The metal for a gold base should be 32 gauge in thickness and 22k fine. This thickness of material and high karat permits of a closer adaptation to the die than a heavier plate of a lower karat. After being evenly annealed and adapted to the die, it should be tried in the mouth to see whether or not the adaptation is what is desired. The changes required should be attended to now. Too much care cannot be given to the work at this trial fitting. Nothing should be overlooked in any respect. Attention to trimming on buccal and labial sides should not be overdone and yet these should not impinge on the muscular attachments. If the fitting has verified the accuracy of the model, it should again be swaged, as it may have been distorted in handling. A heavy reinforcement is essential. The rim should be reinforced by soldering to it a 20 gauge 20k round gold wire. The ridge should be strongly reinforced by 30 gauge 20k gold plate laid well over both sides of it. On the ridge provisions should be made for the attachment of the vulcanite by the way of looping strips of metal. The whole palate of the upper should be reinforced by a separate piece of gold 29 or 30 gauge and 20k. This should be adapted to the palatal portion of the base accurately and carried from heel of base to a line where the vulcanite will meet the gold and extend about one-eighth of an inch farther, but at this point not in contact with the base. This affords an ideal finishing line as well as attachment for the vulcanite. All the reinforcements should be attached without investing the base, as a little pains and care will prevent distortion of base and at the same time offer better control in soldering as well as a preservation of much energy. When the base is placed on the die and shows slight mobility, by the careful use of a mechanical swager it can be overcome.

A platinum base should be not less than 30 gauge. Its rim and over the ridge should be reinforced in a manner similar to that used in the reinforcement of the same parts of the gold base, using, of course, platinum instead of gold. The posterior edge of the base must necessarily be reinforced. A piece of 30 gauge platinum one-quarter of an inch in width, is securely soldered to the posterior border, leaving the anterior edge slightly tipped to allow an attachment for the porcelain.

While the destiny of swaging in connection with the construction of a gold base is predicted, yet it cannot be abandoned in continuous gum work and for the practice of this work alone is a sufficient reason to gain the mastery of its technic. That there are not more of this kind of dentures made is to be regretted, both for dentist and patient. From the esthetic and the artistic standpoint, the porcelain denture has no equal. Its construction has the right influence upon the operator and stimulates high ideals. Too much of this work is given to the dental laboratories and a great injustice is done to the practice.

Time and consideration for your patience has necessitated the omission of many minor details that should not be overlooked. Careful technic in any part of our work is a safe foundation and is a mighty force in winning success that after all is the coveted goal of ambition.

PRESIDENT'S ADDRESS.*

BY DR. H. G. LOGAN, AURORA, ILL.

Our society assembles this day in its 22d annual convention, and, in accordance with an ancient custom, an opening address by the president is scheduled. This custom might be more honored in the breach than in the observance, for this meeting, so far as my preference is concerned.

Dr. A. M. Harrison, my esteemed predecessor in office, said at the last annual meeting that you may have elected him president to get him out of the secretary's office without jolting. Is it, therefore, logical to conclude that my election as president was because you recognized the fact that great temptations are ever in the pathway of guardians of great wealth? I had been treasurer of the society four years. Whatever the motive, gentlemen, I duly appreciate the position of presiding over this fine assemblage, and thank you for the honor.

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*Read before the Northern Illinois Dental Society, at Elgin, Oct., 1909.

Since our meeting in Freeport one year ago, death, that grim visitor, has entered our midst and three of our number, one a former president of the society, will not respond to roll call here again. Dr. C. W. Cox of Batavia, who was president in 1899, Dr. E. S. Hollem of St. Charles, and Dr. A. B. Elmer of Bloomington.

At Danville, last May, Dr. Arthur D. Black, in his address as president of the state society, said, in speaking of the great work of which he was the moving, ruling spirit, namely, the reorganization of the state dental society: "We started out with a definite purpose that two things were necessary as a basis for whatever was to be accomplished; increased membership, and the establishment of better professional relationship between the men of the community—good fellowship." The success in regard to membership was phenomenal. "The first year increased our active membership from 274 to more than 1,250, and the number has gradually increased until this year it promises to pass the 1,600 mark." As to the second object, the promotion or establishment of good fellowship, he thinks the progress has not been so marked, but "positive and beyond expectation," taking into consideration the difficulties to be overcome.

One of the things we have ever prided ourselves upon in this society, which we have heard reiterated over and over again by our speakers, and which we have come to believe is one of the cardinal principles of the northern Illinois society, is the prevailing good fellowship spirit among its members. We believe some of the features which have fostered this free and easy spirit are the simplicity of membership requirements, no code of ethics, in the sense of subscribed rules, the fact that discussions are open and free, and that the words of those who speak without particular preparation are not taken down and reproduced.

Probably the smaller number in attendance has made the meeting seem less formal than the large state gatherings. Thus the northern Illinois, the southern Illinois, and all other subordinate societies have been doing a sort of kindergarten training for this great developing of the state society.

Many of us well remember four years ago at the Sterling meeting when Dr. Black, then carrying forward the great work of reorganization, addressed us in the interest of that movement. Had he not been able to show us that the greater part of the state was then already organized into component societies, and, indeeed, quite clearly demonstrated that the remainder of the state would be organized in a similar manner, without our assistance, if necessary, it might not have been as easy to have gotten the society's aid. Some of us distinctly felt that it meant peril and even death to the northern Illinois. The results so marvelously accomplished show we were mistaken, and demonstrate not only his ability to do great things but his wisdom in forecasting the future, in order to secure the greatest good to the dentists of Illinois and other states.

A few statistics compiled in 1902, showing what proportion of the dentists in various cities of Illinois belonged to the state society, are, to say the least, somewhat startling as to the paucity of state members. The poorest showing in cities of over 20,000 population was made by a city of 24,100 inhabitants containing eighteen dentists, and none belonged to the state society. The best comparative showing was by a city of 9,400 population; five dentists, two belonging to the state society. Twenty-seven cities of various sizes contained 218 dentists, thirty belonged to the state society, while 337 other cities having 688 dentists and not a state member.

Owing to the great work which has been done in the last few years, this has wonderfully changed over the whole state. For instance, in the city above mentioned, of eighteen dentists and no state members, there are now twenty-one dentists, fifteen belong to the state society, and all the remainder, excepting two, have belonged, or do belong, to the northern Illinois.

The most convincing proof that there are none too many dental societies, is the fact that the most active members in any are those who belong to them all.

In the earlier part of the last century, dentistry was but a trade, and a secret one at that. If a dentist found out anything of importance, it was considered a religious duty to keep it to himself. It dates as a profession in the country from 1840, with the organization of the first dental society and a dental school, results largely accomplished through the efforts of Dr. Hayden. From that time to the present day, dentistry owes its highest development to the influence of the dental society. One authority says: "Dental societies are the fraternizers of the dental profession and where there is free interchange of thought, the mind acquires new ideas." Another says that "dental meetings and the reading of papers attain two objective points. The presentation of new advances and discoveries and the epitomizing of already well-established principles of practice."

Who can measure the great amount of knowledge disseminated and good accomplished to the dentists of the state and country through the instrumentalities of the societies and journals? Those men who, the last year or two, have been examining the journals, selecting, classifying and indexing the literature upon the various subjects for our use in the post graduate course, have been able to get some idea of what is constantly being produced by the brightest minds in the profession. I am certain that Dr. Black and his co-workers in the educational plan, will be best rewarded, and in the manner they most desire, in seeing the dentists of this state and other states, for these Illinois ideas are being copied and extended, make diligent use of the arranged study course for the betterment of the profession and thus of the public in general.

During the golden age in dentistry, the time when the highest known art in tooth preservation was the gold contour filling, Dr. Varney, one of the highest exponents of that method, worked five hours putting in a large contour filling. It was a good filling which did excellent service for over thirty years, and is still as good as ever, we are informed. Now, since Dr. Taggart's great boon to the profession, what backaches and eye strains have been saved the operator, and discomfort and weariness the patient by the employment of the casting method in those extensive cases. His name will ever be mentioned in gratitude wherever dentists are gathered together. Do we realize that only a little over two years ago writers, in describing gold inlay methods, devoted one-half the space in the article to the description of the shaping and fitting of the matrix?

We dentists have been credited with running extensively to fads and extremes in methods of practice in the past and it may be that these are not confined entirely to the past. Many of these so termed fads possess merit and such have usually reached their level in usefulness after having been extolled to the highest pinnacle by their admirers and in turn consigned to obscurity by their defamers. Great are the controversies which have been waged in the forum of the dental meeting and through the medium of the journal, over metal versus rubber bases for artificial dentures; cohesive vs. noncohesive gold; amalgam, oxyphosphates and later the silicate cements, pulp preservation, devitalization, not to mention, or rather but simply to mention, mumification, cocain and its side issue catephoresis, filling versus inlay, and finally gold inlay versus porcelain. These are but a few of the many hotly debated subjects. To be sure, not all have arrived at the same results in regard to these problems.

Indeed nothing could seem farther apart than the following conclusions: Dr. B. Holly Smith says: "The palm must be yielded to gold as the most useful substance with which teeth can be filled," while another authority has repeatedly proclaimed, "There is practically no place in which porcelain cannot be used as a restorer of lost tooth substance. Porcelain is only limited in application by the limitations of the operator." Undoubtedly both of these men prove their assertions in their own clinical experiences. No one desires in the least degree to depreciate the great value to any cause of the enthusiast, for he has ever been the inspiration which has stimulated and encouraged to greater activity those who constitute the conservative element.

Thus great good results to the profession in general by the active discussion of all these various progressive subjects. And while it may be claimed that the "saving remnant" or conservative men in thought and practice have at times saved dentistry from being wholly carried away by fads, they, in turn, require the stimulation which comes by being brought in contact with the enthusiast.

In what class of investigators (?) shall we place the man who arrives at the strange conclusion that cleaned teeth are most susceptible to decay; or he who declares that more harm than good has been done by the tooth brush to the teeth in general; or that man who only fifteen years ago in the state society meeting stoutly defended his acknowledged practice of non-freedom from saliva—either his own or the patients—on the instruments used or in the pulp canals themselves, while treating said canals. Unto such may be applied the scriptural phrase, "They have eyes and see not."

We cordially invite all in attendance at these meetings to a free discussion of these most excellent topics arranged for us by the program committee. And we are assured that the clinic tomorrow morning, secured for the occasion by the superintendent of clinics, will be one of the best ever held by the Northern Illinois Society.

THE MODERN TREATMENT OF TRIFACIAL NEURALGIA.*

BY FREDERICK B. MOOREHEAD, A. B., D. D. S., M. D., CHICAGO.

No lesion known to modern medicine is more vexatious than neuralgia. The term covers a symptom complex which is well known to the laity, but not scientifically comprehended by the pathologist. To dwell upon the symptomatology before a scientific body of medical men, or even a body of laymen, would be akin to carting wheat to Minnesota. The methods employed in treatment amply bear out the statement that the condition has not been reduced to a scientific basis. In the absence of a definite etiology and pathology there can be no rational treatment, and in addressing ourselves to the subject we frankly plead guilty to the charge if empiricism. In choosing the lesser of two evils, however, it is more commendable to give the unfortunate patients the full benefit of our knowledge and experience than to assume a pharasaic attitude, pleading in defense a lack of definite knowledge in the premises. We would state here, parenthetically, that neuralgia is but one of the many lesions, the pathology of which is in process of investigation. Our only object in presenting the subject for discussion is to emphasize some of the more modern findings and practice.

For the convenience of discussion, there are, perhaps, three forms of neuralgia viewed from the standpoint of treatment.

1. Those due to, or associated with constitutional, or general, diseases: Anemia, rheumatism, diabetes, nephritis, malaria, metallic poisoning, arterio-sclerosis, syphilis, etc.

2. Those due to local irritation; diseases of the mouth; diseases of the teeth, including pulpitis, pericementitis, pulp stones, exementosis, impacted and unerupted teeth, etc.; diseases of the eye, ear, nose, and adnexia.

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*Read before the Northern Illinois Dental Society, Oct., 1909.

3. Those intractable cases for which no cause can be assigned and which constitute by far the largest number.

The means employed in treatment up to the present time are twofold—therapeutics and surgery. Of the former, the list of drugs is representative of the U. S. Pharmacopea. We find this statement in one of the old works on internal medicine: "A practitioner has generally some mode of treatment which, during his practice, he considers specific in this disease." Again, another has written, "I have no hesitation in saying that the proper use of alcoholic stimulants is at once the natural corrective of the neuralgic habit, and the most trustworthy of all anodynes. I have repeatedly known a paroxysm of neuralgia prevented and cut short by a glass of hot grog. And I have too often seen the beneficial influences of rum and milk in the morning, in correction of the neuralgic habit, to have any room left for doubt on this score." Such treatment is of course pernicious. Nevertheless it serves to illustrate one type of treatment which has been employed.

Probably the most pernicious form of treatment employed in the past, and in the present, too, is the extraction of teeth. In the absence of an X-ray picture demonstrating a local irritation, the removal of a tooth amounts to malpractice.

As far back as 1874 Barthlow began injecting chloroform into the nerves at their point of exit. Ten years later Bilroth and Neuber introduced osmic acid, injecting a 1 per cent solution. After the practice of Bilroth "Schapiro, 1885, followed with the use of a 1 per cent solution of the acid in glycerin and water, recording five succasses in eight cases." (Hecht.) A few years later, Bennett employed osmic acid with a modified technic. Instead of making the injections through the integument, as did his predecessors, he exposed the nerve and made his injection directly into the sheath. Murphy was an ardent advocate of this method and used it extensively. It was thought by these men that the agent had some specific action on nerve tissue, causing a degeneration. It is known now that the only action exerted was that of a caustic. It did destroy nerve tissue, and, not infrequently, much of the surrounding tissue. Sometimes a necrosis of bone followed its use.

The surgical treatment includes neurotomy, neurectomy, and gasscrectomy. The speedy regeneration of divided nerves seen convinced surgeons that simple neurotomy was useless. Ballance and Stewart have demonstrated that divided nerves begin to regenerate at the end of two weeks, in the proximal and peripheral ends, both in the myelin sheath and neurilemma cells. This is true also of the axis cylinder.

Neurectomy has been practiced with greater success than neurotomy, and yet the results have not been commensurate. Even where a large section of one of the branches has been removed, regeneration has usually followed. Examination of these regenerated nerves, macroscopically and microscopically, shows them much larger than normal and the seat of a neuritis.

Gasserectomy will never become a popular operation. The reason is threefold: 1. The operation is among the most difficult. 2. It is fraught with considerable danger. 3. The results have not been satisfactory; this, no doubt, is due to imperfect removal. Lexer, assistant in Von Bergman's clinic, says "Positively good results can only be reached by complete removal of the ganglion." In his report of 201 cases he gives these findings—83 per cent survived the operation, 17 died at the close of the operation, 11 died of collapse, 7 of meningitis, 1 from infection without, 2 from brain tumor, 1 from brain abscess, 1 from softening of temporal lobe, 1 from hemorrhage, 1 from uremic coma, 1 from cardiac failure. Those who have witnessed the operation or have undertaken it know of the difficulty of complete extirpation.

Time will not permit of a complete recitation of the past medical history of trifacial neuralgia. Probably the most important event in this connection is credited to Schlösser who began experimenting with alcohol in producing nerve degeneration in animals some time prior to 1900. His work, together with that of Oswalt, Levy and Baudouin, has resulted in the most satisfactory method of treatment to date.

The modern treatment of this lesion naturally falls under the three heads suggested.

1. Cases due to general diseases.
2. Cases due to local irritation.
3. Intractable cases.

1st. Group. It follows logically that if the neuralgia is caused by malaria, as it frequently is, the treatment is that of malaria, the diagnosis of which is determined by finding the plasmodium. If it be due to lues, the treatment is plain. If due to arterio-sclerosis, as suggested by Dana, Horsly, Hussey, and others, the use of vaso-dilators is evident. So with nephritis, rheumatism, chlorosis, diabetes, gout, lead poisoning, etc., etc. In all of these cases, hygiene is of paramount importance.

This fact must be stated in relation to this group and the second group also: Trifacial neuralgia due to any of the above causes may persist even after the condition has been corrected. The removal of the cause, therefore, is not always tantamount to a cure. The case then resolves itself into the third group.

2d. Group. To the dental practitioner, this group is the most interesting. It is not the province of this paper to enter into any discussion of diagnosis, and yet, we would make this single statement: In diagnosing points of local irritation in and about the month, the X-ray is of first importance. Not only is the X-ray picture important, but the ability to properly interpret it is also important. In this class of work the film is far superior to the plate in the matter of detail. When the irritant is located, its removal becomes a matter of routine.

There is a relation between mass and momentum. The cumulative action of the irritant bears a close relation to the longevity or chronicity of the case. In acute cases the removal of the cause usually effects a cure. In chronic cases, rarely so. It is a first duty, nevertheless, always to remove whatever cause may be associated with a given case.

3d. Group. We have already borrowed, or brought over to this already the largest of the three groups, cases from groups one and two. It is about the treatment of this revised group that we wish to speak more or less in detail.

The methods of deep alcoholic injection are three in number:

1. Schlösser.
2. Oswalt.
3. Levy and Baudouin.

1. *Schlösser's Method.* Schlösser employs a syringe and a set of thick dull cutting needles. To be perfectly sure that the offending nerve is not overlooked, he injects the surface foramine first. For the supraorbital foramen, the needle is so inserted as not to penetrate the periosteum of the orbit, thus avoiding retro-bulbar edema. The peripheral infraorbital injection is free from difficulty or danger. Injection into the inferior dental foramen gives rise to masseteric and pterygoid spasm resembling a very mild trismus, which disappears in a week or so. The deep injection at the foramen ovale is reached as follows: Having first introduced his fingers into the mouth back of the last molar as a guide, he forces the longest of his three especially devised needles through the cheek, under the periosteum to the pterygoid plate and upward on it until about two and one-half inches of the needle are buried; lowering the handle of the needle admits of advancing the point about another one-fourth inch toward the base, where it is held in place. Then deftly feeling the way backward, and keeping closely to the bone for about half an inch, one feels the needle enter the foramen ovale and the injection is begun." (Hecht. after Kiliani.)

2. *Oswalt's Method.* With an examining finger in the mouth on the affected side, the needle is made to penetrate the mucous membrane of the fornix of the vestibule behind the alveolar process of the 3d molar; here it passes through the external pterygoid muscle or around its lower border, until it touches the external pterygoid plate. Now (being in the zygomatic fossa), the needle is advanced slowly and carefully upward along the external pterygoid plate until it comes in contact with the infra-temporal surface of the great wing of the sphenoid bone. The point is carried backward in the corner between this infra-temporal surface and the external pterygoid plate as far as a sense of bony resistance is felt. When the needle no longer meets with bone, but encounters soft tissue instead, arrival at the foramen ovale is to be inferred.

To inject the second branch, withdraw the needle backward a line or so, after having injected the third branch; now slide it forward, always in contact with bone, to the corner surface between the infra-temporal surface of the great wing of the sphenoid and the external pterygoid plate until more marked resistance ceases to be felt. This marks the boundary between the zygomatic and spheno-maxillary fossae. Once in the fossa, advance the needle straight and upward for about two and one-half to three lines, in order to meet the sup-maxillary nerve where it emerges from the foramen rotundum.

First branch: Again push the needle a line or so upward and so reach the posterior lower end of the sphenoid fissure, where the ophthalmic branch passes from the middle cranial fossa to the orbit." Hecht.)

Method of Levy and Baudouin: This method is extra-buccal and to be preferred to either Schlösser's or Oswalt's method. It will be noticed that Oswalt's method is merely a modification of Schlösser's method. Schlösser, no doubt, has an a priori claim to the technic, The method of Levy and Baudouin recommends itself for three reasons:

1. It is simpler and safer.
2. The operator has better control of his patient.
3. The approach is more direct.

Technic:

First Branch. The needle is inserted at the outer wall of the orbit at the juncture of the external angular process of the frontal bone and the frontal process of the malar bone. The superior external angle is followed, hugging the wall closely until a depth of 3.5 to 4 cm. is reached when the injection is begun.

Second Branch. A line is drawn vertically from the posterior border of the frontal process of the malar bone, and the needle is inserted at the lower border of the zygoma, 5 c.m. posterior to this line and inclined slightly upward. The nerve is reached as it emerges from the foreman rotundum at a depth varying from 4.5 to 5 cm. Whether the nerve is reached as it makes its exit from the foramen or passes across the pterygoid-auxilliary fossa makes but little difference.

Third Branch. The needle is inserted at the lower border of the zygoma, 2.5 c.m. anterior to the descending root of the zygoma. The direction is slightly backward and upward, following closely the base of the skull. The foramen ovale is reached at a depth of 4 c.m.

The ordinary surgical cleanliness is observed in making the injections. The syringe of choice is the Luer which holds 2 c.c. The needle devised by Levy and Baudouin is very satsfactory. It is a straight needle with a dull cutting point, graduated in centimeters up to five. The entire length is probably 10 c.m., the diameter, 1.5 m.m. A blunt stylet fits the needle, which is inserted, after the integument has been punctured, to guard against wounding vessels etc. The solution which we have been using is one suggested by Patrick, and is a slight modification of Levy and Baudouin's solution; the morphine being left out. The following is Patrick's solution:

Cocaine hydrochlorate	gr. i
Chloroform	m x
Alcohol	ʒ iii
Distilled water sufficient to make	℥ ss

The alcohol should be increased in strength in each successive injection.

Except in the highly nervous patient no general anesthetic is necessary. The use of an anesthetic is very unsatisfactory to the operator as it takes away his most valuable guide: viz, the sensory phenomena produced by the needle coming in contact with the nerve. Where a general anesthetic becomes necessary nitrous oxid gas should be used. In most cases a local anesthetic, such as ethyl chlorid (spray) or Schleich's infiltration method will be sufficient. The pain is not great and can be easily borne by the average patient inured to the pain of trifacial neuralgia.

A point of practical importance is the number and frequency of injections in a given case. We believe that the affected branch should be injected at least three times, even where the first injection has been successful. In our experience in twelve cases, the first injection is successful in controlling the pain in about 50 per cent. The pain disappears after the first injection in half of these, or in 25 per cent. In a chronic case we make it a rule to inject on three successive days. If, however, there is much soreness or discomfort following the injection it is well to skip one or even two days, before repeating. Failure to entirely control the pain, even after four or five injections, should not be considered unsuccessful. We recently injected a case five times without entirely relieving the patient. He had been operated on seven times with the usual post operative history. The pain, however, grew less daily, and disappeared entirely at the end of a week. He is now enjoying freedom from suffering the first time in ten years. A similar experience was had in a man, 70 years of age, with a history of pain extending over a period of 13 years. He was injected on six successive days, alternating the injections between the second and third branches, as both were involved. He was obliged to return to his home in another state at the end of the period, not entirely relieved. The pain entirely disappeared within a week and, up to the present time, there has been no recurrence. It must be borne in mind that the injection of 2 c.c. of alcohol, repeated two or three times, is quite likely to cause some pain for a few days. We base our recommendation for frequent injections not upon opinion but upon experience. This is running counter to current indictment, but after a thorough trial of both methods, we are forced to employ that which is most successful. The nerve involved is no doubt more quickly overwhelmed by frequent injections, and in the absence of contra-indications the method ought to commend itself alike to both operator and patient.

The deep injection of alcohol is not a panacea. Occasionally cases will be met with upon which the treatment will have no effect. In such cases operative procedures are definitely indicated. The operation commending itself most strongly is that devised by Abbe. The technic of his operation, briefly stated, is as follows: A vertical incision is made over the middle of the zygoma, through the temporal muscle, to the bone. A small opening is made with the trephine, chisel, or bur, and enlarged to one and one-half inches in diameter. The Dura is pressed away from the middle fossa and the ganglion of Gasser is raised up so as to expose the nerves. With a haemostatic forcep the nerves are grasped and divided close to the foramina of exit. The stump is either excised close to the ganglion or removed by avulsion. A strip of gutta-percha tissue is laid over the foramen ovale and rotundum and pressed into place by a piece of sterile gauze. The ganglion is then allowed to settle back into place. Harris of Chicago is very enthusiastic over this operation and has used it successfully a number of times.

Conclusions.

1. Cases of trifacial neuralgia due to constitutional lesions should receive appropriate general treatment. This is a trite statement and is used only as a premise.

2. Cases due to local irritation call for local correction.

3. All cases should receive the deep injection of alcohol. This should be continued until it is clearly demonstrated that surgical treatment is necessary.

4. The deep injection of alcohol is the safest, simplest, and

most satisfactory treatment yet suggested for the treatment of trifacial neuralgia.

5. The Abbe operation should be selected in all operative cases.

BIBLIOGRAPHY.

Levy and Bandouin (Presse' Med., April, 1908).
Killiani (Med. Record, N. Y., Jan'y, 1908).
Lexer (Archive für Klinische Chirurgie, Vol. LXV).
Patrick (Journal A. M. A., Vol. XLIX, No. 19).
Dana (Med. News, N. Y., Vol. LVIII, 1891).
Cushing (Johns Hopkins Bull., Vol. XVIII, 1907).
Hecht (Journal A. M. A., Vol. XLIX, No. 19, Nov., 1907).
Hussey (Journal A. M. A., Vol. LIII, No. 9, Aug., 1909).
Oswalt (Lancet, 1906-1).
Abbe (Am. Surg., Jan'y, 1903).
Ballance and Stewart. McMillan Co.

REPORT OF COMMITTEE ON DENTAL ART AND INVENTION.*

BY DR. P. B. WRIGHT, MILWAUKEE.

As an aid in making this report we wrote to several of the leading Dental Manufacturers for a list of their recent productions, and in addition to this we have tried to report whatever else seemed to be of interest. Casting appliances and accessories have appeared in the usual number, each with special advantages.

A new temporary stopping in the form of a cement called Calxine seems to possess considerable merit for the purpose for which it was intended; namely, a hard impervious stopping, capable of sustaining 250 pounds pressure for sealing treatments in the teeth. It becomes quite hard—yet is easily removed with a sharp excavator.

A new departure in the treatment of pyorrhea and alveolar abscess is the Sub Nitrate of Bismuth Paste suggested by Dr. Beck of Chicago. Favorable results have been reported from its use.

The Ritter Dental Manufacturing Company calls especial attention to their new Caustic Potash Cells, as being of great value to dentists who wish an electric current in their offices, but who live in small towns where the current is not available.

The S. S. White Dental Manufacturing Company offer the following new appliances:

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*Read before the Wisconsin State Dental Society, July, 1909.

1. A casting ring to be used in connection with their swedging outfit.

2. A new form of gold known as "Corona," similar to Moss Fibre but more dense and compact in form.

3. Accessories for Casting Inlays:

Inlay casting ring tongs.

Heating frame of heavy wire for drying out investments over a Bunsen burner.

Black Inlay wax.

A Silver abscess probe mounted on a nickel plated holder like a cone socket instrument which can be reversed when not in use.

Tartar Solvent, a solution of Ammonium Bifluoride, the formula of Dr. Joseph Head. This preparation will probably arouse considerable interest and criticism.

The Consolidated Manufacturing Company call attention to their new Vulcanizer which requires no wrenches or tools to open or close it. Other features recommend it to the progressive dentist:

1. The round aseptic bracket table is an attractive accessory to the operating room.

2. The improved Roach attachment for partial plates.

3. Suggestions for using Davis Crowns in connection with the casting outfit for obtaining a perfect adaptation to root.

Price Artificial Stone.

The Price Electric Company have produced a material for making models of cavities for inlay work, known as artificial stone. This is the invention of Dr. Weston A. Price, who has given it to the profession. A demonstration of this will be made during the clinic.

Items of Interest for December, 1908, contains an interesting article by Dr. Weston A. Price of Cleveland, Ohio, on "The Detailed Technique for Making Dental Restorations on Artificial Stone Models." Dr. Price has tried to reduce the contraction of gold in the process of casting inlays by making a model of a very hard artificial stone and casting directly onto this model. The resistance offered by the hard model will overcome the shrinkage of the gold to a considerable degree, thus making the inlay fit the cavity much better.

We recommend a careful reading of this article and also the two preceding articles which appeared in the May and June numbers of *Items of Interest.*

The advantage of taking an impression of the cavity and obtaining a model in artificial stone upon which the inlay can be made and finished are emphasized by Dr. Price. It saves both the patient and the dentist and an accurate occlusion and contact are obtained.

J. W. Ivory offers two new matrix retainers, one for bicuspids and small teeth similar in design to the familiar No. 1, but with a shorter shank which will be of great convenience in many cases.

2. An anterior matrix clamp for holding steel or celluloid matrices in filling cavities in the incisors.

3. An adjustable separator which has many advantages over former designs.

The new white enamel office furniture offered by the American Cabinet Company is a decided advance in aseptic office equipment.

Dr. Ribolla, Italy, has devised "A New Respiratory Apparatus for the Use of Surgeons and Dentists," designed to prevent the constant interchange of air exhaled by the patient and the operator. The apparatus consists of a simple thin metal frame covered with mica or transparent celluloid, which is fastened to the ears by means of two hook bows. The condensation of the breath is absorbed by a small pad of sterilized cotton which is held in place by a small clasp.

A new chemical compound for use as a local anesthetic is Alypin. It is a definite compound, which may be obtained in the form of tablets of various weights, the most useful for dental work being known as Alypnoid D, containing Alypin one-third gr. with 2 minims of the boric salt of suprarenin 1:10,000. Dr. G. Weber of Germany describes this as being the best local anesthetic he has ever used.

PYORRHEA.*

BY DR. W. C. WENDELL, MILWAUKEE, WIS.

What is it? Is it a local or a systemic disease, or a combination of both? Can we eliminate one from the other?

Some of our most prominent writers upon this subject consider it constitutional, whereas others think it a local disorder. If the latter, why do they maintain that it produces functional disorders—stomach, headache, nervousness, tuberculosis, rheumatism, gout and almost every disorder that the human being is prone to, and yet not admit that any of the above pathological conditions will aggravate or produce pyorrhea?

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*Read before the Wisconsin State Dental Society, July, 1909.

Now, it is most inconsistent to follow this doctrine. Unless you desist from a version of the two, viz., local and constitutional, you cannot go on claiming that pyorrhea will produce these different disorders. You must acknowledge that it is a functional disorder, or local. "Whoever saw pyorrhea in a mouth after the loss of the teeth?" Does this prove it is local because you have no teeth, are there less bacteria floating in the atmosphere, can you inculcate the germs after the entire extraction of teeth, with pus from a pyorrhea pocket? Do we find this disease in children's mouths? At least not before the age of about sixteen, although some claim to have treated cases as early as twelve years. Does the child contract the disease from the parents when they are fondling, caressing or kissing it, or as some are in the habit of making use of the euphonious osculation method and claiming it is contagious?

Is this disease infectious? If so, in what way is it transmitted? Can ordinary communication of one diseased organism be conveyed to a healthy organ and produce a pathological condition the same as existed in the other? Is it necessary to have the same elements present in the healthy mouth that previously were present in the original pyorrheal communicant, or must the individual possess the essential prerequisite for a perfect union to produce this disease? If so, what part of the mouth first becomes involved, or what particular tooth or teeth, when once infection takes place, and then micro-organisms begin to multiply, why is it that the whole arch or the entire teeth in the mouth are not involved? Why is it that we do not have this disease present in the decidious teeth?

If you have an abrasion upon the lips or the mucous membrane of the mouth, in what manner or way does it inoculate the pericemental membrane, through the circulatory system or does it transmit it directly? "This is one of the osculation theories. It is infectious and one can inoculate himself with it just as with any other infectious disease." If so, this virus must pass into the circulatory system and then becomes a constitutional disorder, and naturally would affect the entire teeth.

Having considered the infectious theory, let us pass to another, viz., inoculation. Can we produce pyorrhea infection by inoculation?

By this term we do not only mean injecting into the gum tissue pus taken from a pyorrhea pocket, but carried by different instruments to the soft tissues, then would we produce pyorrhea, in removing salivary calculus from one tooth which is affected with pyorrhea? Can you carry it to an adjoining tooth which has upon it nothing but ordinary calculus, using the same instrument?

The etiology of this disease can be accounted for to a greater or less extent if we eliminate numerous pathological conditions that exist in the oral cavity and are designated as pyorrhea alveolaris, which never ought to be called by that name. Discrimination should be made sufficiently clear that we can diagnose the different diseases that present themselves for our treatment. All pus flows are not by any means pyorrhea; the greater our knowledge of pathology the more successful we will become in curing diseases of the mouth.

There might be many local injuries which may produce an inflammation and suppuration; involving the pericemental membrane producing a pus pocket; for instance, a fig, or small grape seed, tooth pick, tooth brush bristle, pin, very often used by careless persons, and numerous other foreign substances that would cause a traumatism. Then we have constitutional affections that manifest themselves—syphilis, tuberculosis, rheumatism, gout, etc., that aggravate conditions in the mouth.

My personal opinion, experience and observation of this so-called disease should be confined almost entirely to two etiological factors, viz., salivary calculus and serumal calculus. My reason for taking this stand is based upon the ground that the majority of operators confine almost their entire cure upon local conditions, in thorough removal of all deposits from the roots of the teeth, and local medicaments for treatment. It does not necessarily follow that it is a local disease, for there must be a cause for this condition. It may be accounted for to a certain extent in that the elements that enter the system to build up the osseus structure, which is completed at about the age of 27 years, and the osteoblastic cells having fulfilled their functions, these calcareous products must be eliminated through the excretory channels, as the alimentary canal, urinary tract and the salivary organs. Naturally, we have a preponderance of inorganic matter in the saliva, in the more mature individual than in the younger, and this is the reason why the young person is quite free from salivary calculus, so if you do not find it extensively present in older people you usually will find they are afflicted with rheumatism, gout, kidney, liver or some other organic disease that calculus plays a part, provided it is not eliminated through the proper channels.

Professor Miller has found about six different kinds of bacteria in the mouth. He has isolated more than a hundred, and says that all cultivable microörganisms whose germs occur in the air, in food, in drink, will have been found in the oral cavity. In the face of this, he has been unable to produce a culture on account of the fact that as soon as they make their appearance they disappear again, so, until some bacteriologist will discover and make a culture of pyorrhea germs, we will grope in darkness.

I simply make mention of this condition, as there are so many dentists continually harping upon bacterial conditions of the mouth when certain bacteria will live and not be affected by one remedial agent and live upon another; in other words, what is life to one is death to the other.

During a recent visit east, I had occasion to visit an experimental laboratory, and while there was shown a slide under the microscope, which I was informed contained the saliva of a patient afflicted with a disease I am about to make mention of.

This same slide was given to a prominent dentist, and, placing the slide under the microscope, he diagnosed this case as a sexual neurasthenic bordering on melancholia. The doctor conducting these experiments stated that the diagnosis was perfect, which was a revelation to me. A man who knows nothing about the case, only by looking at these crystals through a microscope, was able to say that this individual was afflicted with the disease above mentioned. If experiments of this kind continue, we will possibly solve the pyorrhea problem.

Many of our greatest pathologists have spent much time and effort in the endeavor to propound something new in relation to this disease, and have failed signally in their efforts, hence it is only fair that you do not expect too much from a mere neophyte. I shall endeavor, however, to demonstrate, to a certain extent, that a great many of the theories advanced are erroneous and misleading, and that especially have we this condition in the uric acid diathesis.

What is pyorrhea alveolaris? A suppurative inflammation of the pericemental membrane in relation with the connective tissue of the gum beneath the mucous membrane. Can we attribute this disease to local causes, or constitutional, or both? The writer will try to prove that the disease is local and constitutional. The local or primary cause is due to calculi. These deposits are commonly divided into two classes —salivary calculi and serumal calculi. The former is held in solution by the saliva, and precipitated by some organic menstruum. The latter is traceable to the blood serum, and named by Peirce, hemotogenia. This serumal calculi, you will find, extends from the gingival border to almost the end of the root of a tooth, not in a continuous layer, but in different strata. After having formed, these calculi act as a persistent irritant to continue the gingivitis and excite degenerative changes in the pericemental membrane. In these cases, we have progressive necrosis of the membrane and the alveolar walls. An instrument passed into these pockets formed in consequence of the death of the pericemental membrane and atrophy of the alveolus, may not reveal any roughness whatever, in contradistinction to what Dr. Younger says upon this subject. The etiology of this disease is much in darkness, some claiming it is local, others that it is constitutional, and some that it is both. Dr. Younger, who has been quoted by Dr. Good, claims that it is of entirely local origin. Younger's theory is original. He claims the deposit emanates from the alveolar structure itself, that it is the lime salts disintegrated during the destructive inflammatory process, taken up by the pus, and by force of impact, deposited upon the roots, where, by bacterial energy, it is agglutinated. As one proof of this, he states that the amount of deposit upon the root is in proportion to the amount of destruction of the alveolar process, and vice versa. This theory, advanced by Dr. Younger, to not a very close observer, would seem very plausible and correct, and certain manifestation would bear him out. For instance, we have in calcareous degeneration an infiltration of the tissues with the phosphates and carbonate of lime, mingled, usually, with the same magnesia salts, constituting what is called calcareous degeneration—calcification.

Calcified tissues are recognized by their hardness, and their solubility in strong acids, with the evolution of gas.

The causes of calcification are: First, excessive quantity of earthy salts in the fluids of the body; second, diminution of agents which normally hold in solution the salts of lime, particularly of free carbonic acid; and third, transformation of soluble lime salts into insoluble modifications.

Virchow has described the deposit of lime salts in various parts of the body, particularly in the arteries of the lungs and stomach, in cases of extensive caries, and of cancerous disease of the bone.

This calcification he attributes to the presence in the blood of an absolute excess of limesalts derived by absorption from the diseased bone. With the exception of these cases to which Virchow has called attention, it does not appear that calcareous degeneration can be referred to an abnormal amount of lime in the blood.

Other causes of calcification than previously numerated are belived to be operative when the salts of lime are locally deposited in the tissues, the nutrition of which is impaired. In the vast majority of cases, lime is deposited in tissues previously diseased, such as necrosis, the result of enemia. Litten observed calcareous particles in renal epithelial cells, in which coagulation—necrosis—had developed in twenty-four hours after temporary ligation of the renal artery. We find calified deposits in cheesy masses in old inflammatory products, desiccated pus, in tumors and in and about parasites. They are taken up by cells, especially leucocytes, in which the metamorphosis into granular or crystalline pigment takes place. The pigment may be subsequently set free from the cells.

Having considered the earthy salts and the pigments distributed throughout the system, and some diseases that might emanate from their presence, let us take a disease that has been closely associated with pyorrhea alveolaris, namely the gouty diathesis, and we have this pathological condition according to the researches of Murchison and Sir Dyce Duckworth, who, among others, have associated the expressive formation of uric acid and the development of gouty attacks with disturbances of the liver. Under the name of lithemia, or latent gout, Murchison described a set of symptoms very commonly met with in this country. Among the conspicuous symptoms is the appearance of uric acid urates and calcinen oxalate crystals in the urine in abnormal amount. Under these symptoms and conditions, we do not find crystals or urate deposits, but in true gout we do.

Now, if this is the case that uric acid is not normally present in the blood of man or other mammals, and that uric acid is normally produced in the kidneys only, and probably is formed by the union of urea and glycocin, an ingredient of the liver, it will be seen that an excess of uric acid in the urine is not necessarily an indication of gouty diathesis. It has also been shown by pathologists that in gout, uric aicd is diminished in quantity rather than increased. Is it, therefore, not reasonable that, in order to properly diagnose a case of gout, it is necessary to examine the blood? It has been customary for dentists to refer their patients afflicted with pyorrhea to their physician for an examination of their urine, for the purpose of ascertaining whether there is uric acid present or not, and you can readily understand, if it is a normal excretiatory product, it avails you nothing in diagnosing your case as constitutional pyorrhea.

Dr. Stockton says: " That gouty deposits do not follow because there is uric acid in the blood, may be proven by the fact that in leukemia and several other affections in which there is rapid growth and destruction of leucocytes, there is formed a relatively enormous amount of uric acid from nuclelinic acid, and yet in these cases we find none of the ordinary symptoms of gout, no deposits of the biurate of soda in the tissues, but we do find the uric acid passing from the body partly unchanged and partly in the form of urea."

Horbaczewski advanced the theory some years ago that uric acid is formed chiefly from the destruction of the leucocytes, and he believed that a great part of the nuclein produced in the body was due to leucocyte destruction. He found that whenever there was a leucocytosis there was almost invariably an increase of elimination of uric acid.

In considering the conditions given to us by pathologists, it would seem to me that as the earthy salts are a normal ingredient of the blood and held in solution by CO_2 and these calcareous deposits are present in numerous organs of the body as previously stated in this paper, the gouty diathesis is of no material benefit to us in diagnosing a case of pyorrhea.

An etiological factor in pyorrhea is the neurotic and malocclusion theory advanced by some writers.

I have a number of patients who are in the habit of producing a malocclusion by throwing the jaw forward or to one side or the other. I recall a case of this kind where it has produced an inflammation in the pericemental membrane, and caused the entire destruction of the labial soft tissue and alveoli, and entire loss of the tooth.

The case was a young jeweler, who, while working at the bench, was in the habit of forcing the tooth against the bench, or allowing it to rest against a file handle. However, I will say that this is the only case I have ever met with in my practice. Where we have a natural articulation and an imperfect adaptation of the occlusal surface, I would consider it a perfect case of malocclusion.

Abnormal breathing is a potent factor in loosening, yet little regarded in many cases. Any cause—obesity, occluded or malformed nasal passages, or growths in the post nasal region, will be sufficient to induce mouth breathing. In such cases, the teeth spread and project, and pockets are formed around the roots, usually on the lingual aspects, at first, but later they are seen encircling the whole root.

I have been asked, upon numerous occasions, whether pyorrhea alveolaris is infectious, or contagious. If my observations have been correct, I would say, not; however, if proper care is not taken and antiseptics used, you may produce inoculation. If this disease were infectious, it would, in a very short time, affect the entire dental arch,

Permit me to enumerate, in a condensed form, some of the etiological factors presented to you in the present paper.

Calcareous deposits in every form, whether constitutional or local; neurotic tendency; malocclusion acquired; malocclusion congenital; traumatism, and numerous other causes man is prone to.

Man, on account of his intellect, is liable to suffer from the perversion of the laws of nature. The intelligence which makes him a ruler on this earth, makes him also his most severe enemy. Through disobedience of the laws of nature, he converts the processes of his own development, causing him to depart from his type more than the lower animals.

If we could follow nature's laws more closely, we would have less to write upon pyorrhea than at present.

It is my honest endeavor to impress upon you the importance of treating all pathological conditions of the mouth as an entire system, taking into consideration every part of the human body, not neglecting one for the benefit of the other, always bearing in mind that the elements that enter our system play their relative part in its construction and maintenance, and any modification or change may be beneficial or detrimental, according to the laws of nature. If you have malocclusion, correct it; irregularity, change it; salivary calculus, remove it; serumal calcula, scrape off the barnacles; loose teeth, brace or band them; tuberculosis, rheumatism, gout, indigestion, treat them or refer your patient to a physician for treatment.

If afflicted with pyorrhea without any of the above complications, treat as any local disease; otherwise, if you have constitutional symptoms, ascertain what they are, treat them accordingly, rectify all other defects and your success will be beneficial proportionately to the energy and knowledge you have acquired throughout your dental career. Instill into the minds of your patients the importance of practicing prophylaxis, destroy all things that are detrimental, acquiring that which purifies, sweetens and gives fragrance to the breath, and you will bestow a blessing upon mankind.

WHY THE BREAKAGE?

BY DR. L. P. HASKELL, CHICAGO.

A young woman who had all of her upper teeth extracted 15 years ago, and has been wearing rubber plates since, until two years ago, went to a dentist of this city to consult in regard to a new set.

Here was a case where the continuous gum denture was the only one that would meet the requirements of the case, a short upper lip and jaw prominent over the incisors, so when smiling her gums showed. But of necessity it must be a thin gum, and this is the only method of securing a thin gum that is at all strong, because it is baked to the plate. There are many of this class of cases.

The denture was made, I having baked the case, and was satisfactory in all respects. In a few months she appeared with the case badly shattered, looking as though it had been dropped on the pavement, and the dentist believed it had been, but she asserted it had never dropped. I thought it was owing to mal-occlusion.

It was made over, care being taken to insure proper closure, but in a few months it broke down. She came to me and I took it in hand, taking the greatest pains with it, but again the same result. I said it was useless to go over it again, for a careful consideration satisfied me that no porcelain work would stand the strain, for these reasons, viz: Excessive absorption had left a narrow ridge, so that the closure of the lower teeth was outside the ridge which would cause a great strain on the denture. On the lower jaw, left side, were two large molars, but worn so as to be inclined planes, forming practically a wedge. On the right side a bridge, but on both sides the teeth were much shorter than the anterior teeth, unfavorable again. To add to the difficulty, the patient would not allow the teeth to be as long as the natural ones, evidence of which was in the fact that where once were good sized molars there is now only room for two very short ones. So being short in front, there was no room for sufficient length of backings, upon which much depends for strength.

There were a combination of conditions I never before met with. I made a heavy gold plate, with rubber attachments. The rubber attachment will break, as all her rubber plates have, but can be readily repaired.

PROCEEDINGS OF SOCIETIES.

THE NORTHERN ILLINOIS DENTAL SOCIETY, MEETING AT ELGIN OCT. 27, 28, 1909.

DISCUSSION OF DR. F. B. MOOREHEAD'S PAPER.

HERBERT A. POTTS, M. D.:

Mr. President and Members of the Northern Illinois Dental Society: The discussion of a paper, the prime motive of which is to call to your attention the advantages of a comparatively simple operation which in skilled hands is capable of affording almost certain relief to patients suffering from such a terrible malady must, at my hands, fall short of much enlightenment, especially as my experiences are practically identical with those of the essayist, and I cheerfully corroborate all he has said regarding it.

Schloesser, of Munich, has reported practically 100 per cent of cures, meaning by that, that he has been able to control the paroxysms of pain for a number of months, while Ostwald, of Paris, in his first series reported only 90 per cent.

This discrepancy may be accounted for by a less careful selection of cases, in other words, using the treatment outlined only in cases in which a positive diagnosis of ticdouloureux had been made, therefore a few words further in regard to diagnosis may not be amiss.

Etiology: Trifacial neuralgia is a disease of middle life and old age, being rare in children and young adults. Females are subject to it somewhat oftener than males, about 25 to 20.

It is prone to occur in members of neuropathic families who have subjected themselves to severe mental or physical labor or both. It occurs also as a late manifestation of lues.

Arterio-sclerosis may play some part in that through arterial disease the nutrition of the ganglion is impaired. The etiological factors mentioned by the essayist in classes 1 and 2 of the paper must be fully considered.

Symptoms: The onset may be insidious, beginning with a feeling of coldness or tingling over the region supplied by one or more branches, possibly with a herpetic eruption, or it may begin suddenly with a severe paroxysm of pain. One patient told me that as she was out driving she had the experience of being struck upon the head with a club.

In another case the paroxysms, rather light at first, gradually increasing in severity and frequence followed an extensive herpetic eruption extending over the side of the face, head, shoulder, chest and back of the affected side.

Twitching, both objective or subjective, of the facial muscles may be present, being due to stimulation of the seventh nerve either locally or through the spheno-palatine ganglion. Lachrymation and salivation are often quite excessive.

In some cases of rather long standing one will notice that the affected side is fuller than the other, an examination will show a thickening of both skin and subcuticular tissue.

In most cases the nerve trunks are sensitive to pressure at their foraminæ of exit upon the face. To be especially differentiated are:

1. *Hysteria.* Pain over the area supplied by the fifth nerve in hysteria may simulate the pain of tic-douloureux in every particular, but in hysteria other stigmata can usually be found such as contracted or inverted visual fields, or inconstant areas of anesthesia or hyperesthesia which are not sharply confined to areas supplied by local sensory nerves.

2. *Diabetes.* Trigeminal pain at times accompanies this disease, but the history together with the examination of urine will rule out the idiopathic tic.

3. *Postplegic pain.* This condition may be quite easily con-

founded with tic-douloureux and occurs at times in patients who have suffered from cerebral hemorrhage. The lesion in this case is in the brain and the pain is *referred* to the areas supplied by the fifth nerve, being only a peripheral manifestation of a central lesion and any operation upon the peripheral nerves is absolutely useless.

5. *Migraine.* This condition may be confused with trifacial neuralgia, but a careful history will establish the diagnosis. In this condition the pain is usually confined to the area supplied by the first branch. Subjective disturbances of sight as well as nausea and vomiting and constipation are also present. The history of sick headache in the family, especially upon the female side, is often present.

6. *Convulsive tic.* It is hardly possible to confuse this condition with tic-douloureux although some authors speak of a severe facial spasm accompanied by pain in which a trifacial neuralgia might be thought of.

The injection of alcohol may be used successfully in the treatment of these habit spasms, which in the beginning, probably, all have a peripheral sensory exciting cause, but which continue and many times grow progressively worse after the cause has been removed.

When these motor nerves are subjected to the action of alcohol, their function, just as with the sensory nerves, is abolished, but with restoration of function, there is no return of the spasm, and in like manner the restoration of function in sensory nerves is not accompanied by the pain.

DR. THOMAS L. GILMER:

The paper of Dr. Moorehead is a well thought out presentation of the subject discussed. The etiology and pathology of the disease under discussion is very obscure; therefore the less said on this phase of the subject the better.

The essayist has not fully differentiated the ordinary nerve pains which Osler terms minor facial neuralgia, involving the perifery of the fifth nerve, due to irritations in the teeth, syphilis, malaria, etc., from true trigeminal neuralgia or tic-douloureux, for which deep alcohol injection is used as a remedy. We may have neuralgias in any branch of the trifacial, and still not have genuine *tic douloureux.* My experience leads me to believe that neuralgias of the face and jaws due to pulpitis, pulp stones, the plasmodium, lues, etc., never become spasmodic in the sense that *tic douloureux* is spasmodic. The former may be spasmodic in that it is periodic, as appearing with menstruation or when due to the plasmodium or when pain appears as a migraine, commencing with the rising of the sun and ceasing with its setting. These forms of neuralgias cannot, it seems to me, be classed under the same head with the other more formidable malady, generally termed trigeminal neuralgia or *tic douloureux.* In this form we find the patient suffering from an intense pain in one or more branches of the fifth nerve, which comes on suddenly without notice, and after a period of sudden remisison for a greater or less time only to return in a similar sudden paroxysm. This pain differs from other neuralgias of the same locality, in that they are not excited by speaking, eating, or by touching certain areas of the integument or mucosa, while *tic douloureux* is generally excited by these means.

I cannot get my consent to the belief that genuine trigeminal neuralgia originates in the perifery of these nerves. I have seen many of both kinds but have never known a case, whose history indicated that the ordinary neuralgias of the face and jaws had developed into the more intractable spasmodic variety. It is possible, I grant, that through a neuritis following up from an irritated perifery, the gasserian ganglion may become diseased and as a sequence that peculiar paroxysmal, painful affection known as trigeminal neuralgia result, but with no data to substantiate such a theory I am inclined to believe that the disease lies primarily in the central organ. It is true, as the essayist has said, that in some instances the main trunk of the branch most effected at times becomes enlarged, indicating periferal origin, but it is not difficult to suppose this change due to trophic disturbances as a result of central involvement.

I am quite in accord with the essayist in what he says regarding the perniciousness of the extraction of teeth without sufficient data for the sacrifice of these organs. I have seen edentulous jaws made so by poor diagnostic ability. I am also in accord with Dr. Moorehead in regard to the aid the radiograph offers in excluding the teeth as factors as a causative factor in minor neuralgias of the face and jaws. One must be skilled in reading x-ray pictures before he is able to fully interpret them. If the exposures are improperly made and are poorly taken and badly developed errors may be made in their interpretation, which will lead to unnecessary and harmful operations. It is easy to accidentally fake radiographs in such a manner that false impressions are given. I have seen many such.

My experience extends over a period of many years in the treatment of facial neuralgias of all types, therefore have had opportunity to observe or try many methods offered in the past quarter of a century of medical and surgical practice for their cure. Of the ordinary kinds of neuralgias originating as a result of poisons, such as follows the introduction into the system of the plasmodium, syphilis, etc., the exhibition of specifics for these diseases have cured the neuralgias, but for the other form, commonly known as trigeminal neuralgia or *tic douloureux,* medications either externally or internally employed, have not, in my hands, been followed by any permanent cures. I have given temporary relief by the use of aconitine, gelsemium, castor oil, and massive doses of strychnia, after the method of Dana, but with only temporary relief. Dana in about 1893 reported a number of cases cured by the use of strychnia and complete rest, commencing with small doses and increasing it up to massive doses for that drug. No one else but himself, so far as I know, ever obtained any permanent good results from the use of his treatment when the case was one of true *tic douloureux,* or as Osler denominates it major neuralgia or epileptiform neuralgia, to distinguish it from neuralgias of the ordinary kinds, which he speaks of as the minor neuralgias of the fifth nerve. Osler says, also, that except in the mildest forms no medical treatment offers any hope of cure, and that surgical interference must be resorted to.

One form of treatment not referred to by Dr. Moorehead, which has been employed by some surgeons with fair temporary relief, was neurotony or stretching the nerve affected. I have tried division, excision, evulsion and stretching of the branch affected with temporary success in each, ranging from a few months to five years. I have secured the greatest benefit when the second branch was involved by making an incision at the rim of the orbit, raising the periosteum covering the floor of the orbit, dissecting back to the .sphenoidal fissure, exposing the nerve, then cutting forward in the bone to the rim, exposing the nerve in its canal leading to the infrarorbital foramen, dissecting out the leash; then following the nerve back as near as possible to the foramen rotundum and cutting it off. I have cured a number of cases for a reasonable period by exposing the second and third branches at the infraorbital and mental foramen and injecting osmic acid. More or less of the nerve is destroyed by this means, but no greater benefit is derived by this method as the essayist has correctly said, than by any other means which destroys a part of the nerve. I have had two cases in which gasserectomy was done with Dr. L. L. McArthur as principal and I as assistant, both being permanent cures so far as I have knowledge, after a number of years. In each of these cases we endeavored to remove the entire ganglion, but as a precaution we placed a piece of gutta percha tissue over the foramen. Formerly the mortality of gaserectomy as done by the pioneers in this operation, Krause and Hartley and the late Dr. Edmund Andrews of Chicago, was great, but with better knowledge and facilities it is much less so. When all other means have failed it is to be undertaken, as the suffering of the patient is so great that anyone will accept it as he prefers death to longer suffering, but all other means should be exhausted before it is attempted.

Up to this time the alcohol injection for the cure of major trifacial neuralgia has a good record. It certainly is preferable to any other method of treatment, except in those few cases which do not yield to it. Out of six cases I have treated by this method but one has proven intractable. In this the branch affected was the second. Four injections of this case failed to relieve the patient except temporarily. I feel sure that the nerve was properly reached in this case since there was anesthesia over its distribution. I should have again repeated the injection but left for my vacation after the last injection and since he was free from pain I had supposed him cured, but in a short time after the last treatment the pain returned. He consulted another surgeon who did some sort of a surgical operation which ten days after its performance seemed to promise success. In this case the radiograph showed no lesion or cause for the pain.

Alcohol injection for the cure of *tic douloureux* is yet too new to fully establish it as the best method of treatment in all cases, but in most cases it must supercede the ordinary periferal surgical treatment. So far the relapses have not been more frequent than other periferal operations. It is more simple, can be done without an anesthetic, and but few cases are reported in which it caused more than temporary disturbances. It offers much to those suffering from the malady, since it may be repeated with equal hope of relief in case the pain returns. I agree with the essayist that the Levy and Baudoin operation is the most desirable, since it is more easily performed and there is less danger from infection. I am not inclined to inject so frequently as indicated by the essayist. If the pain is fully relieved at the first injection I prefer to wait, and in case it does return then inject again. I have no failures in my few cases with the exception of the one indicated, though some of them were injected over eighteen months ago.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A memorial meeting to Dr. A. W. Harlan and Dr. Joseph W. Wassall was held October 5, 1909, with the president, Dr. Truman W. Brophy, in the chair.

Dr. J. H. Woolley:

I have expressed myself once before in regard to the life and work of our friend, Dr. Harlan. I think it is something to have lived and made an impress upon those amongst us, and the kind of impress that will live after the one who has made it has departed. We all know Dr. Harlan's zeal and his efforts as regards the profession. We all know his relationship to the profession and to those who were nearest to him, and we miss him and mourn his loss.

In regard to our departed friend, Dr. Wassall, I wish to say this: Again death has visited our society and taken from us one whom we all held in great respect and esteem. The sudden death of Dr. Wassall by a most painful accident brought a great shock to all who knew him. The sudden cutting off of a life of usefulness and the severing of the ties of friendship and professional relationship bring a sense of deep loss to his fellow workers. "A friend has crossed the bar to that great port beyond the skies." We pass our eulogy, our tribute and exchange words of kindly remembrance.

Dr. Wassall did not live in vain, for he was a man of high purposes and a practitioner of high merit and skill. He will be remembered for his kindly spirit, broad sympathies and devotion to his chosen profession. This society extends its warmest sympathy to the bereaved daughter.

Dr. J. E. Hinkins:

I question if there was a man in the profession or outside of it who stood closer to Dr. Harlan than I did; and I do not hesitate to say that he was one of the most brilliant men the dental profession has ever had. The work he did for dentistry will long be remembered.

With regard to Dr. Wassall, he was a man of high moral ideals; a man that suffered a great deal, and I firmly believe he laid down his life for the sake of his family, and especially his children. When I first met Dr. Brophy, at Dr. Harlan's office, I met Dr. Wassall, and have known him from that time until his death, and I want to say frankly that I have never met a man in my life with less pretension of any form, who was so devoted to his domestic affairs and his family, and who was a more honorable man in his commercial, social and professional life than Dr. Wassall, and if we only had more men like our departed friend Wassall, we would have a different dental profession from what we have today.

Dr. C. N. Johnson:

This is a sad, yet at the same time a very sweet occasion. When men who are the comrades of a man who has passed away meet together around the board and spend an evening in commemoration of the personality and the professional character of the one who has gone, it is a very high tribute indeed. When you have met with a man, and dined with him once a month for more than twenty years, you become very well acquainted with him. You get closer to him than you do to the ordinary member of the profession, whom you meet in other capacities, and in going back over the records of the Society we find the names very prominent in that Society of Drs. Harlan and Wassall.

Dr. Harlan was the founder of this Society. He was chiefly responsible for the high standard established by it. He was its backbone for many years, and also for many years he was one of the most towering characters in the whole dental profession. We expressed ourselves in regard to him at the time of his death. We are glad now to pay this added tribute to his memory.

Dr. Wassall was with us longer than Dr. Harlan. We had grown to be very close to Dr. Wassall. Dr. Wassall typified in many respects one of the highest and best elements of the dental profession. He was progressive. He was a reputable practitioner. He did a great deal to elevate the practice of dentistry in this city. In that one regard his influence is not lost today, because he is gone personally, but that influence will go on and dentistry will be better practiced on account of the life and work of Dr. Wassall. When we contemplate the circumstances of his taking away it bids us pause and think how small the strings and ties of life are after all. In the presence of the stupendous thought of having him taken so quickly from our midst, we should receive a lesson of charity, of loving kindness, a lesson to ignore the little things of life and to look for the greater and better, and the bigger in human experience.

I cannot add more in paying a personal tribute to Dr. Wassall than what has been expressed by Dr. Woolley and Dr. Hinkins. He was a character in our profession. He was a clean practitioner. He stood for the best there was always, and we as a little coterie of friends will miss him at our board. I am glad to be able to pay this personal tribute to him as a friend. He was one of the earliest men I met when I came to Chicago, and he was a true and steadfast friend to the end.

Dr. W. V. B. Ames:

I can only repeat what has been said, that Dr. Wassall's life, as a citizen, a member of this Society, and especially a member of the dental profession, was one which, if any one of us could count on having credited to ourselves, would make us decidedly well satisfied with what we have accomplished. He was not only a man of high moral character, and high gentlemanly instincts, but as a professional man he had that originality and initiative which have made a decided mark for him. I feel that what any of us may say can only be a slight addition to the testimonial of the Society, which, I suppose, will be passed in regular form, and if anything I may say of Dr. Wassall can be embodied in that testimonial, I will be glad to do it.

Dr. J. G. Reid:

I have expressed myself on a former occasion in regard to Dr. Harlan.

(After speaking of coming to Chicago in 1876, and referring to the early life of Dr. Harlan and himself, as boys together, and of his pleasant relations with Dr. Harlan as a professional man, Dr. Reid said:) I was with him from 1876 to 1882 in his office. We were inseparable friends. During all these years he was my confidant, and I was his confidant. My association with him was most pleasant through my life.

As to Dr. Wassall, he came to Chicago about five or six years later than I, and I became acquainted with him within two months after he was graduated at Ann Arbor, and I had been quite intimately acquainted with Dr. Wassall since. He has been my guest many a time. In my earlier married life my wife and I spoke frequently about Dr. Wassall, Dr. Davis, and Dr. Ames, when they were unmarried men, and they used to frequent our little domicile at times whenever they felt like coming. They were always welcome. I have had a great many pleasant evenings and days with Dr. Wassall in my own home. Personally, I look upon Dr. Wassall as quite a character in the profession, because he was of the aggressive type. He was about as sturdy and as stern in his methods of practice, possibly, as any man we have in the city. All of you know that. Dr. Wassall was a man I really liked, and I am glad I have this opportunity to express myself regarding him and our long acquaintance. It will be a pleasant memory to me, and I am glad I knew him as well as I did.

Dr. A. E. Royce:

It is useless for me to try to express my sentiments in regard to the two members that have passed away. It seems to me that almost every man who came to Chicago during Dr. Harlan's palmiest days was under obligations to him. He was ever ready with his advice, friendly hand, and a kind word.

In regard to Dr. Wassall, I believe that we live in this world by our influence over others. I believe that influence is everlasting. What has been said of Dr. Wassall tonight indicates what his influence is and will be.

Dr. L. L. Davis:

In attempting in a feeble way to offer my slight token of esteem to these two members who have departed this year, I would first speak of Dr. Harlan, and say of him that all I am I believe honestly and sincerely came through his influence, and anything I have ever done that may have helped the profession in any way came through his suggestions. That he was a great man in the dental profession no one can gainsay. At times like this the mantle of charity should cover all men's weakness. He has gone from our midst, and let us say only good things about him. Let us forget the little weaknesses of humanity which may crop out in any one of us. His life he gave freely, generously, and more devotedly than any other man in his profession to his profession.

I can only say that in the loss of Dr. Wassall I shall personally feel it, because early in my professional career I was very intimately associated with him. Many of the little improvements that occurred from time to time in my method of practice I absorbed seemingly from association with Dr. Wassall. Even so late as within the last year I have seen in the routine of practice in his office methods that I think tend to the highest ideals in dentistry. If ever a man practiced dentistry with the possibility of the highest ideals, Dr. Wassall did so. I have learned from him methods I think I shall never forget, and so, not only have I lost a helper, but a true friend.

Dr. A. C. Searl, of Owatonna, Minn.,

Was asked to say a few words. He said: Mr. President and Gentlemen, I wish to thank you for this opportunity of meeting with you. It gives me great pleasure to be here with you, and I can say the same for my son.

So far as the loss of these two members of your Society is concerned, I knew neither one of them personally; but the kind, loving words that have been spoken around this board, in their memory, this evening, makes me but love them as much as if I had known them.

I thank you again for the opportunity of being with you.

Dr. Truman W. Brophy:

I regarded Dr. Harlan as a man possessing a very remarkable mind. No man in our profession or out of it possessed a mind more far-reaching. He had a remarkable capacity for remembering men and their names, locations and dates, incidents and quotations from books. He was unique in this. He could not only tell you the names of men, but where they lived, what street they lived on, and the numbers of their houses. Those dates never seemed to have escaped him. Dr. Harlan was a tremendous power for good in the dental profession. He was wedded to it. His whole life was devoted to the improvement of himself, the acquisition of knowledge and the dissemination of that knowledge among his friends, the members of the profession. He thought more of this Society, and of coming to its meetings than anything else in the way of Association work in this world. Even international matters had not the charm for him and had not that strong attraction for him that this little coterie of ours had right here in Chicago; and he told me the last time I saw him, with tears in his eyes, the thing he most regretted was that he had lost so much by his inability to attend the meetings of the Odontological Society of Chicago.

Dr. Wassall, when he became a member of the Society, said he felt out of place; that he was the youngest member of the Society, and that he could hardly account for the selection of him to be a member, as the Society was made up of older men whom he regarded as being far in advance of himself in the profession. Though young, said he, I will do the best I know how to show you I appreciate what you have done for me. And did he not do it?

The most satisfactory and the most useful work of this Society was largely due to the efforts of Dr. Wassall. Dr. Ames will bear me out in this, because it was Dr. Wassall more than any other man to whom we were indebted for the bringing out of that monograph entitled, "The Care of Pulpless Teeth," or the "Treatment of Pulpless Teeth." He worked over it night and day for months. He was the chief member of this Society, who worked it out for the help of everybody, and discussed it meeting after meeting. The stamp of his labor was on that work, and it gave this Society the reputation that it has achieved throughout the professional world.

Dr. Wassall stood for the highest and the best that we have in our profession. If Dr. Wassall was not a man of high ideals, standing for the best in the profession, then we have not a man of high ideals. Some have gone; some of us are left a little longer to speak of those who have passed, and by and by, not very long perhaps, others may speak of us, and we hope they will all speak in a kindly way.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting was held October 19, 1909, with the President, Dr. W. H. G. Logan, in the Chair.

A paper was read by Dr. Hart J. Goslee on "The Application of Castings to Removable Bridges and Partial Dentures," and also one by Dr. W. D. N. Moore on "The Technique Pertaining to the Construction of Metallic Full Dentures."

DISCUSSION OF DR. GOSLEE'S PAPER.

DR. C. E. MEERHOFF:

Mr. President and Ladies and Gentlemen: It is a very difficult matter for me to discuss a paper with the sum and substance of which I am so much in accord. The essayist has seen fit to go into the applicability of certain appliances more than he has into the technique, and because of that difficulty, I will have to discuss it in a more or less random way and dwell more particularly on what I consider the technique.

The use of inlays, and more particularly such attachments as the Roach or the Morgan, for removable bridge work is to be commended. For my part the use of the Roach attachment entirely has not been so satisfactory as in combination with the Morgan. In my own practice at least three of the last cases I have had I have preferred to use the Morgan attachment on one end and the Roach on the other, for the reason that I considered the rigidity and the greater area of impingement of the Morgan attachment afforded me a better attachment and a little more security from vertical stress, while the Roach, on account of the ball and socket construction of it, afforded sufficient attachment for the other end.

In the use of these attachments it has occurred to me at times that it would be well for us all to consider the need of a little greater cervical extension if we are to use inlays for these attachments, both cervical and lateral extensions. The casting also of these attachments, particularly if they be of clasp metal or any one of the alloys, is a delicate matter unless one takes great care, and perhaps the best practice is to cast the case cold, or nearly cold. In some cases either in fixed or removable bridges in casting two abutments, where one was liable to have imperfect union between the cast part and the abutment, I have thought it advisable to invest my cast in one investment and pack a little solder between the cast part and the abutment, just the least bit of solder being sufficient.

The use of the clasp crown, of which the essayist spoke, has afforded me a great deal of pleasure and some comfort. I think it is more particularly advisable in cases where one has more than two abutments. Apparently, the difficulty of alignment of the different abutments makes these clasps—a flush clasp, if you please—unusually stiff, not so resilient perhaps as a roll plate clasp would be, but the stiffness holds the appliance very firmly in place.

The casting of clasps for the purpose of engaging a natural tooth was my practice for quite a while, but I believe I will be compelled to admit that I have practically abandoned it because of the uncertainty of the alloy of the clasp after you have cast it. Clasp metal, in my estimation, is one of the most unruly metals we have anything to do with, and I do not believe that the casting of it improves it in any particular. In fact, I think it has every disadvantage after it has been cast.

The brittleness of the metal is against it if you depend on resiliency, as you usually do in clasps.

In this connection, the use of clasp metal bars for the lower partial plates, the bar plate, gave rise to one of the most harrowing experiences I ever had in the casting of this bar. The clasp metal was supposed to be as near a perfect alloy as I could purchase—and I have taken the same precaution that the essayists recommended, and that is the use of a specially cleaned ingot in each case. Clasp metal is one of the metals I do not want to cast a second time. I would prefer to throw it away or turn in my excess to the refiners, and have new metal each time I cast in order to be sure of knowing what I have. But in the casting of this bar I was discouraged. I believe that the round drawn wire of number 12 gauge, or perhaps this same 12 gauge wire slightly compressed by rolling through the rollers will answer the purpose better than any cast case, for this reason, the advantage in casting this bar seems to be entirely to secure adaptation, a better adaptation than it is possible to secure with a pair of pliers, with so heavy a bar. That is the advantage in casting. The fact of the matter is there is no need of really perfect adaptation or conformation of this bar to the tissues, and if the bar is cast and left close to the tissues, there is liable to be some springing or settling to bring it into contact with the tissues, and I have seen one case where the accumulation of deposits in the sub-lingual region was of such a degree that this calculus impinged upon the tissues and caused considerable irritation.

The use of 20 or 22-carat gold for plates, and particularly for the partial uppers, where the palatal section is to be cast, has offered me some food for thought, for the reason that I have been afraid that there was not enough stiffness, and my endeavors now are to find out if perhaps coin gold with the addition of copper would not add to the value of that alloy for the making of these plates.

In using diatoric teeth, or any one of the removable crowns, particularly in conjunction with the saddle, I have found it an advantage to fit little washers or preferably a little disc, cutting off the pin a little below the shoulder and soldering the little disc to the pin and having that engage the wax in order to assist in the removal of the tooth in working with it.

The essayist said a little about the difference in waxes. The soft pliable waxes work better in my hands in working on the models, but if I am working in the mouth I want the harder wax; and if I could get it I would prefer Dr. Taggart's over any other.

The painting of molten wax upon a model, particularly if the wax be of the stiff or hard and brittle variety, I would discourage, for the reason that it is a little too fragile, and hard to handle, taking it from the model or adjusting or readjusting it.

For some time I used vaseline on all surfaces to which I was about to adapt wax, but of late I have used nothing but olive oil. I have found that there is, apparently, less residue. I do not know that there is any real residue to the vaseline, but in pulling the two sections apart, there seems to be a lining to the cap about the removed crown.

The essayist spoke of using shellac for painting the models, and also sandarac, and he also used number 4 gold foil, burnished to the model, and he also spoke of using wax over that. I believe Dr. Taggart was the first to gold paint his models, and this was done by his shellacing the model with a thorough coating of thin shellac, filling it as it were, and afterwards using some form of gold paint mixed thoroughly, for smoothness, and then oiling this. It is possible to adapt any one of the waxes, particularly the wax of which the essayist spoke, prepared by Ash & Son; and then, by stiffening with ribs or with little beads, you can do almost anything you want to in the way of removing from the model.

The size of the sprue and the channels leading from it in the casting of anything but the simpler pieces was a source of a great deal of discouragement to me for a while. The tendency seems to be to use too large channels. Generally speaking, I should say that the diameter of any one of the channels leading from the sprue should be considerably less than that of the sprue itself, and I have heard it stated that the best result might be attained by making the aggregate diameter of the different channels equal to that of the sprue. I do not believe it is quite necessary to draw it as fine as that, but I would have them always less than the diameter of the sprue.

Of course, thinness is a desirable quality in the making of any saddle piece of any denomination so long as it is sufficiently stable to give a reasonable amount of wear.

The larger the case the more liability there is to be cracks in the investment. In the larger casts and particularly such as those mentioned by the essayist, for instance, a saddle where a clasp was cast with a saddle, if there were a crack in it, it would most likely occur at the union of the saddle with the tooth, or at the point where the clasp meets the upright section. Consequently, that one thing would rather discourage me in the casting of any one of these removable fixtures, but the need of a thin investment I think is apparent to all of us.

I am of the opinion that no matter how many pieces you have to cast, in extensive cases, even if you have to make a piece of three or four or five castings, it would still be vastly better than any swaged piece, and the work would pay.

I am not familiar with the use of low fusing bodies in connection with this work, although I do know that it is possible to cast saddles of any alloy of gold that you may desire, in the case of a simple saddle, using perhaps two dowels, fitting another saddle of platinum to that with the tubes, in which these dowels fit, and then taking a piece of the platinum saddle and cementing that eventually to the gold saddle which was cast, it would make a very good case.

Like the essayist, I am of the opinion that there is no limit to the possibilities of the casting process. I think we will all see the time when we will be casting full cases. I believe we are going to do away with rubber attachments, which will be a great boon to all of us. I believe that crowns will take the place of plates or rubber teeth, and that casting is only in its infancy. It does require considerable courage to attempt anything but the simpler forms of castings and expect to succeed the first time. Some of us err when we expect our first effort in the making of any cast to be absolutely successful. It takes perseverance in order to get along with this line of work.

I am very glad to have been able to discuss this paper, although in this somewhat meager way. I could hardly sit down without paying my compliments and expressing my recognition to Dr. Taggart, the discoverer of it.

DISCUSSION OF DR. MOORE'S PAPER.

Dr. Lester Bryant:

We have listened to a very interesting paper. In my discussion of it I shall only emphasize a few points which seem to me to be of the greatest importance. First, the impression must be filled immediately upon removing it from the mouth. If an upper plate and the palate be hard, the hard part should be trimmed. Then the rugae ought to be deepened a little, if for no other reason than to stiffen the plate. The model should be run off at once, and as soon as the plaster has set it should be separated, for, as Dr. Moore has said, if left for any length of time, it will have a tendency to warp, and in that event the plate would be apt to ride on the ridge.

Dr. Moore speaks a great deal about the hydraulic devices, but there are very few dentists who have these machines. Most of us have to rely on the hammer and the iron block, and good results can be obtained with these. However, the die and counter-die must be thick enough to withstand the strain and not batter.

Very often, after a plate has been wired, it will be found that it has sprung a little. This may be remedied by filling the molding ring with modeling compound; and while the compound is still soft, press it into it to make the counter; then chill the compound and the plate can be swaged into this without danger of it afterward being sprung.

I agree with the essayist when he says we will be casting all gold casts in the near future. I have not cast any uppers, but I have cast two full lower, the nicest casts I ever made.

GENERAL DISCUSSION.

DR. SHEARER, Houston, Tex.:

I have enjoyed these most excellent papers and the discussion very much. I had the pleasure of meeting this Society several years ago, and when I learned that there was to be a meeting here to-night, I made a special effort to be present, and I feel that I have been very fully repaid for my efforts.

My very limited experience in casting large pieces does not qualify me to enter into any discussion on the subject, but I wish to thank the members of the Society for their very kind invitation to be present.

I also wish to state that our Texas State Dental Society will, next year, sometime in the spring, entertain the Southern branch of the National Dental Association, and I would like as a member of the Executive Committee of the State Association to extend to each and every member of this Society a most cordial invitation, whether a member of the Southern branch of the National Association or not, to join with us and accept our hospitality. I thank you. (Applause.)

Dr. E. M. S. Fernandez:

Mr. President, Ladies and Gentlemen: The paper Dr. Goslee has read to us tonight is certainly a masterpiece in its way, and although my experience in this kind of work is probably not so extensive as his, I wish to differ with him in some of his methods.

The methods of making a plate for a partial or full set by means of casting is in my mind a question. A piece of cast gold, the way we cast it in dentistry, very often seems to come out slightly porous, and for that reason I would not consider it a good process for the purpose. If one would cast two very thin plates and then solder them together, it might possibly make a strong enough piece of work; otherwise, it seems to me, the plate would have to be cast very thick in order for it to be reliable for the purpose.

If we melt gold, pour it in an ingot and then roll it for the purpose of swaging plates, we have, as a result, a compact and strong piece of gold which is very well adapted for plates for dentures. So it seems to me that we will have to wait a little longer and perfect our casting process before we use it for partial or full plates.

In regard to the manufacture of clasps, I would say that if a rigid, unyielding clasp is desired, the casting process would be appropriate, but if a flexible clasp is wanted, then rolled clasp metal is preferable.

In regard to the casting of bridge-work, either in one solid piece or in sections, I would advise to give a preference for the sectional casting. I have seen some very fine pieces of bridge-work, cast in one piece, that have broken at the joints; therefore, I believe it preferable to fracture the wax model at the sections, cast them separately and then solder them together.

I agree with the essayist in regard to the making of removable bridge-work wherever it is possible. One advantage of the removable bridge-work is the convenience in cleaning it perfectly while removed. Also the saddles of same resting on the gum furnish quite a support for mastication and relieve the supporting teeth from a great deal of strain.

I also agree with the essayist in the use of "Diatoric Teeth" wherever possible. They make a very pretty piece of work, and are quite easily repaired.

Before I close my remarks, I wish to say that I hope we all remember Dr. Taggart kindly whenever we do our casting.

DR. F. E. ROACH:

The scope of Dr. Goslee's paper is too wide for a detailed discussion, and is of too great importance for merely passing notice.

Dr. Moore's paper is one of value and importance to all of us, and I am glad to see that Dr. Moore had the courage to get up and give us a paper on the technique of making plates by the swaging process. We are not yet ready to abandon the swaging of metal in our prosthetic work. We have a place for it. Like a great many other good things, let us hold to it till it is proven obsolete.

I quite agree with Dr. Goslee and Dr. Meerhoff that we will see the time when we will do almost all of our prosthetic work by casting, and that this will be the universal method of manipulating all of our metals for all purposes in the mouth, even to the abandonment of swaging platinum for use in continuous gum work, but as yet we are not ready to abandon these older methods.

It is a disappointment to me that the dental profession has not made application of the casting method more in prosthetic work than it has. If you will look over the papers which have been published in the various dental journals since the advent of casting, you will be astonished to see how little has been published upon the use of this most excellent method as applied to prosthetic dentistry. It has been a source of considerable wonderment to me, and I have made a study of it, and have feared that too little attention was paid on the part of the profession to the prosthetic part of the work. Too much of our work is going to the laboratories.

A point with regard to the technique of making these saddles, I think, has been possibly overlooked, one which is of very great importance in the making of these cast saddles and the removal of the wax from the model. I have found it is almost impossible to manipulate any of these waxes in a way that will not destroy them in the transferring of the wax from the model to the flask cast, and in order to obviate any possibility of distortion of these cases I have found the most accurate, and universally reliable method, is to use wax as referred to by the essayist; this soft, thin, and very pliable wax, which is furnished by Ash & Son, is easily adapted to the model. By soapstoning the surface of this wax itself, you will have no occasion to use any separating medium other than that. The sprue wire should be attached to the saddle in a suitable place in the center by a little enlargement of wax at that point, and the investment built upon the sprue wire prior to the removal of the wax from the model. In that way you avoid absolutely any liability to distortion. My experience has taught me that it is almost impossible to remove this wax other than by this procedure without distortion, and herein lies the cause of most of the failures which have resulted from the use of the casting method in securing accuracy of adaptation.

Casting as applied to prosthetic dentistry does not call for that exactness in adaptation that we have in our inlay work, but we want accuracy to the greatest possible degree in all of our work, so that in our casting we get far more accurate work than it was ever possible to get with our swaging methods. The casts that we can do, the under-cuts, the narrow, short alveolar borders over which it was so difficult for us to swage and tap the metal become as simple as the easiest of those to which we were formerly swaging our plates.

I have confined its use largely to partial casts, making the small saddles and then connecting them in sections.

There is practically only one phase of the paper with which I can take issue, and upon that I have a very pronounced opinion, and I am going to make it known. That is in connection with these lower partial cases, where the wire is run across from one part of the plate to the other back of the incisors. I prefer that this connecting bar be made of drawn wire. I think it is evident to every one that the casting of metals of any kind will result in a weaker metal than a drawn or rolled piece of metal.

The use of castings for saddles in connection with all porcelain structures such as diatoric teeth, or any of the detachable pin crowns, or the vulcanite attachments, any of those forms are of satisfactory construction. You can cast these saddles in metal in equal thickness to that of the rolled plate and have a great deal more satisfactory saddle than if it was swaged, for the reason that the saddle is more rigid, and it is less liable to be distorted. One of the great objections we have all experienced with our partial swaged plates is a tendency to an opening of the joint between the vulcanite and the metal owing to the pliability of the metal itself. In this particular, the casting is far and away beyond the swaged metal in its use and stability. It has sufficient rigidity with a minimum amount of metal that you can obtain in a casting, and that, together with its accuracy, gives to it a position far superior to that of the swaged plate. But for the bar the wire is more reliable, and I believe there will be less breakage of these cases. The more I use these connecting bars, the more I place them back in the floor of the mouth entirely away from the hard tissues, about one-eighth of an inch from the model itself. I want to be absolutely sure that this metal does not come in contact with the hard tissues, and it is really surprising how these loose tissues in the floor of the mouth will come up and fold over this wire, and in some instances the wire will be almost entirely obliterated or covered up. They are the least obstruction to the tongue, the least irritating and the least liable to break of any form of plates that it has ever been my experience to make.

I want at this time to emphasize what I have said a good many times, that this form of bar connection should be used in all cases of lowers to avoid the irritation that would occur to the lingual surfaces of the remaining anterior teeth by the use of the old form of plates which rest against the lingual surfaces.

As to the use of cast clasps, I believe that the cast clasp has but a limited field. In my experience the casting is too brittle. There is a great difference, however, in the metal that we use for our castings, and this should be one to which we should pay especial attention. It is a point which was especially emphasized in the paper, and I want to call especial attention to it, and that is the purity; as near as possible, get the purest of the metals you are to use for this class of work. It is important in our work as prosthetic dentists that our metals be strong.

Before closing I want to say that I believe the Society is very fortunate in having this paper brought before it at this time by one who is so ably qualified, for, as I said before, I believe that this subject has been too much overlooked, and I want to congratulate the essayist and the Society for bringing this most excellent paper before us.

DR. G. W. DITTMAR:

I have not much to add to what has already been said. However, I regret that Dr. Taggart was not here to have seen this crowded room, to have heard the papers which have been so ably presented this evening, and also to take part in the discussion of this interesting subject, which his genius brought as a boon to us and to our patients.

Regarding the point which was made by Dr. Roach as to the investment of a saddle or any frail wax model, it is very good. I was driven to the same thing myself because of repeated failures. By covering the thin wax and sprue with the investment first, applying it carefully with a brush, and after that investment has set, then taking it off the plaster cast and flasking it, the frail wax model will be insured against breaking, binding or loosening from the sprue.

Dr. Meerhoff stated that he never used clasp metal a second time. I have not made a great many castings of pure clasp metal. I almost always use clasp metal in connection with twenty-two carat or pure gold, but I have often used such an alloy over and over again *after refining it,* and to cleanse or refine it I use Dr. Taggart's suggestion, sprinkling equal parts of borax and salt petre on the heated nugget, fusing it on a charcoal block; for me it seems to cast as well the second, third or fourth time as it did the first.

Dr. Meerhoff also spoke of using diatoric teeth. The term diatoric was used here this evening and it might have given a wrong impression because of certain makes of so-called rubber teeth having that name. As I understand it, diatoric also means any of the removable or detachable teeth, such as the Davis crown, White's or Justi's detachable crowns, etc. In the use of these teeth he says he generally solders a small metal disc to the pin, and this metal disc then lays in the wax, so that the pin would not pull out when he removed the tooth. That is a good scheme, but I seem to get as good results by roughening the pin, as the essayist impressed upon us, and then putting that heated nicked end into some "Parr's wax flux,"—a sticky wax with a little flux in it,—thus melting a little of this on the end of the pin which is to be held in the wax, then painting my other softened inlay wax around that, in this way making the attachment secure. I was driven to that because I had the annoyance of the pins loosening up when removing the teeth from the wax model.

Dr. Roach brought a point out very forcibly, and I simply want to reiterate it, about the placing of the metal bar. Personally, I do not believe in casting the metal bar from one saddle to the other, because the adaptation to the soft tissues is too close. Lower dentures almost always settle some, and this adaptation is so close that it almost always gives trouble; for that reason, if for no other, a wire bar ought to be used, but there are the other, and to my mind most important reasons which Dr. Roach so forcibly brought out.

Regarding the use of a good separating media, in and around these so-called diatoric teeth, when you wish to remove them from the wax model, instead of using vaseline or olive oil, I have gotten in the habit of using an engine oil, prepared by S. S. White Dental Manufacturing Company, an elegantly perfumed oil. It is a thin oil and works nicely in that respect.

One other thing I wish to add which I do not believe was touched on, and that is the great advantage of casting the gold or alloy into a practically *cold* flask. Dr. Taggart has admonished repeatedly that the cast should be made in a cold flask. I positively get the best results when casting in a perfectly dry but partially cold flask, having it so cool that I can comfortably handle it with my bare fingers. In having the flask very hot the flask and investment are somewhat expanded; then, too, if you wish to cast onto any clasp metal clasps, clasp-metal pins or attachments with the flask already very hot and a large mass of very hot metal rushing on to them, the clasps, pins or attachments are almost surely ruined. With a cold flask this will not occur, though personally I believe it is better practice to solder such clasps or attachments on after the casting is made.

DR. GOSLEE (closing the discussion):

The idea seems to prevail, if I judge aright in the discussion, that I recommended the casting of the bar which unites the two lateral halves of the lower dentures. I did not recommend it, Dr. Roach and Dr. Meerhoff. I said it had been recommended.

I quite agree with the two gentlemen to whom I have referred in taking objection to the statement, that it was not practicable, for the reason that I have had some trouble along that line which I told Dr. Roach today, and that trouble was due to the very fact, as has been mentioned, that cast metal is very brittle, and, therefore, it is not indicated where any springiness or resiliency is required.

I have also thought a bar, if it be of the proper metal and of the proper size, is better than a cast section or portion, because adaptation, as was said, is not required at that point. If I were to cast that portion of this case, I would cast it more for shape and form than for adaptation, because we do not want a close adaptation at that point. However, I think if you wanted a little better shaped form than the round wire would give you, you could get springiness and resiliency and strength and a casting all at the same time by using an iridio-platinum wire and casting around it, waxing up to it, thereby obtaining a little better form. But I am prepared to say, however, that I am perfectly satisfied with No. 12 round iridio-platinum wire for that purpose, and I do not believe it would be possible for us to improve upon it with anything that I know of unless it be in the shape, and even that round form could be improved upon slightly, as Dr. Meerhoff suggests, by passing it gently through rollers and flattening out the two surfaces.

As to the modeling of hard and soft waxes to the proper shape and form on the model, I am of the opinion of Dr. Meerhoff and Dr. Roach, and others that I know of, that for prosthetic purposes a more or less plastic wax or at least a softer wax than the hard ones we use for filling is preferable. There is too much brittleness to these waxes. I also have never been able to obtain very good results by melting the wax and painting it on.

The size of the sprue and the channels leading from it to the mold has been referred to. I regard this very much in the light that Dr. Meerhoff referred to it. The central sprue should always be the largest one, and then I am quite sure that if these sprues which reach from the central one to the various other points be about half of the diameter of the central sprue that they will meet the requirements very nicely, and I do believe that they can be entirely too large. It has been stated that many of us expected to accomplish too much at the beginning of our work along these lines. I think that is quite true. I think many failures are to be attributed to that fact. Surely none of us became able to put in a good gold filling when we started. It was a matter of educational development, and so is this question of casting, and it will be some time before we will be able to do that with any great degree of certainty, but if we are plodders and work along, those of us who have ability will accomplish best results sooner or later. The porosity of cast metal was referred to by Dr. Meerhoff and subsequently by Dr. Roach, and it is perfectly true that cast metal is more porous than one which has been rolled or drawn, and that accounts for its brittleness. That applies also to the construction of clasps. The construction of clasps which fit into a seat, such as was referred to in the essay, is all right. There you do not need a great deal of resiliency. Your fit there of shoulder and angles, etc., is what gives you the necessary strength in the adaptation, but if you desire a clasp which would have to encompass a sufficient amount of the tooth to retain the appliance properly and which would have to be more or less resilient in order to spring over the tooth and get down to the proper point, I would not think of making a cast clasp for that purpose.

The casting of bridge-work in sections and subsequently soldering was referred to by my good friend, Dr. Fernandez. He said he was going to differ with me a little bit, but he did not at all. I do not believe with Dr. Fernandez that we should cast to sections in bridge-work, and I believe it is much better to cast smaller pieces and unite them with solder as he suggests.

The casting of the intermediate part of the factor which is to support the missing teeth, directly to the abutment pieces, I do not approve of at all. Always unite those cast pieces to the abutment pieces with solder and you will have very much better results than if you make an attempt to invest your previously cast attachment and then cast the other body of the bridge to that. You will very often find you have not a sufficiently strong union there and you have to subsequently solder them, which can be easily avoided, thereby saving much time.

Dr. Fernandez made the statement that removable bridge-work relieved the strain of the abutments because it rested somewhat on the softer tissues. The abutments supporting the roots of the teeth are so much more unyielding and immovable than the softer tissues between them, that to rest the body of the bridge on this soft tissue does not relieve the abutment of very much strain in my opinion.

The distortion of the wax in removing it from the model and investment was brought out by Dr. Roach, and very properly so. Extreme care must be taken in the removal of wax and its subsequent investment to prevent distortion. I like his idea of using the investing material before lifting it off, very much indeed. I have not used it yet, although I have supported it with iridio-platinum wire twenty gauge and cast right over and around the wire. I have enjoyed the discussion very much indeed, gentlemen. I feel highly complimented, to have had so many things said, but I feel especially pleased to see that the subject has appealed to you as being a somewhat live one. My one object in presenting this paper to you, as I said in closing, was to stimulate and encourage you in working along these lines.

In closing, I want to call your attention to a rather singular thing. Not only is it singular here in Chicago and in our own Society, but I have observed it all over the country. The men who are most active in this line, the men who are doing most of it, the men who are achieving the best results, are invariably the men who rise and pay tribute to the inventor. (Applause.)

Dr. Moore (closing the discussion):

One thing I am pleased with was the conservatism expressed by Dr. Roach. I attempted to bring it out in the paper. We are not quite ready yet, on account of appliances and materials, for the casting of large dentures, with the finish and accuracy that we can get from swaging, though, on the other hand, I commend Dr. Goslee's paper. We have to start some time to develop the skill necessary and I do believe that casting these plates will ultimately be accomplished.

Dr. Haskell:

This discussion tonight is on a subject of the greatest importance. It is a subject which has been greatly neglected among our profession. In our school we have had graduates from almost every dental college in the United States. Some of them have been in practice from ten to twenty-five years, and not ten per cent of these graduates tell me that they have ever put a metal plate in the mouth. And why? One reason is this: The instruction in the dental colleges is often so intricate and difficult that the student graduates without sufficient confidence to recommend it to a patient for fear he would make a failure. Another reason is, it is so easy to fall back on the construction of a rubber denture which is so simple.

Very few realize, excepting the person who is devoting his time entirely to this subject of artificial dentures, the differences in conditions in the human jaws. With all my years of practice, I have had in the last few months four cases which were entirely different from anything I ever experienced before—very peculiar and puzzling conditions.

With regard to the problem of the lower jaw, where there is only a narrow flat surface, they are among the most difficult cases we have to contend with. There ought to be more time for discussion of this subject.

IOWA STATE DENTAL SOCIETY, MEETING AT DES MOINES, MAY, 1909.

REPORT OF THE SUPERINTENDENT OF DISTRICT SOCIETIES. FROM MAY 1908 TO MAY 1909.

BY DR. R. H. VOLLAND, IOWA CITY.

MR. PRESIDENT: With your permission, I, as Superintendent of District Societies, wish to make the following report of my office for the fiscal year from May 1908 to May 1909.

REVIEW OF THE YEAR'S WORK.

With due allowance for all the obstacles that must naturally come up and tend to retard the perfect reorganization, I wish to state that this has been a very profitable and successful year among the District Societies. It is needless to say that many things have not gone off as smoothly as they might, many duties have been tardily performed and many things have been left undone altogether, but I am sure that all these imperfections in the workings of the District Societies can be satisfactorily explained and eventually overcome by a little more perseverance and continued co-operation on the part of the members and officers of each District Society.

The newness of the movement will explain the difficulties that have arisen and the shortcomings that have appeared. Only a few of the members in each district were acquainted with each other previous to the advent of the District Society, and consequently there was a strained formality among the members in their relations to each other. Association and acquaintance will entirely eradicate this element.

Many men who had had very little if any experience in executive or society work were necessarily called to office. Their lack of experience, small acquaintance and limited knowledge of the new movement in general made them more or less timerous in pushing ahead and doing their full duty; but time and opportunity of becoming familiar with the work will adjust this difficulty. I think I can say without qualifying the statment in the least that no personal enmity or jealousy has appeared to mar the record of the many officers.

To my mind, the co-operation and mutual support of all concerned, in State and District Societies, and the opportunity to become familiar with their duties and obligations to each other will eventually bring about the desired results, namely, the most efficient District Dental Societies possible.

I believe the following facts and figures will amply support the statements I have just made. In the grant total, twenty-four district society meetings have been held during the year. These meetings have consumed thirty-one days. Six hundred and fifty dentists have attended these meetings, of which probably five hundred and twenty-five are members of the State Society. About one hundred and ninety clinics and demonstrations have been given at these meetings. Each of two District Societies devoted one meeting to a school of instruction along one particular line of work. The University District conducted a school of grinding and occluding artificial teeth according to the Bonwill system. Doctor James of Tracy, Minn., was demonstrator in charge. The meeting consumed two days and was profitable and successful. The Waterloo District Society had Doctor Roach of Chicago give them a day's instruction in the making of removable bridge-work and anchored partial dentures. This meeting was rather poorly attended, but those present report it full of practical instruction.

All the districts have held the two meetings required by the Constitution and By-Laws, with the exception of The Des Moines, The Waterloo and The Sioux City Districts. The Des Moines and The Waterloo Districts have held one dental meeting each. The Sioux City District has held no dental meeting, but a few days ago they had a banquet and business meeting to stir up some interest and enthusiasm. However, in all three instances, I would respectfully suggest that this Society waive the penalty incurred under Article 5, Section 3 of the By-Laws for a District Society, as it seems that each has a reasonable excuse. The Waterloo and Des Moines Districts each planned second meetings, but unavoidable circumstances caused their postponement until the available date would have conflicted with the State Meeting. The Sioux City District Society has a comparatively small membership, but is showing signs of life and interest, and the officers have promised to give it a boost during the ensuing year. They will need and can spend advantageously all the money the Society has, and for these reasons I would suggest that this Society waive the Sioux City District's penalty also.

We may congratulate ourselves on getting the District Societies organized, and in as perfect working order as they are in so short a time. For this reason, if for no other, it would seem wise to waive the forfeit for this year, although it is not a policy I should recommend in general.

SUGGESTIONS.

(1) *Meetings of The District Societies.*

(a) Time. In order to avoid conflicts with the usual big dental meetings of the year and to distribute properly the district meetings throughout the year, it would be my suggestion that the first meeting of each district be held in September or October, and the second meeting in January or February.

(b) Character. A school of instruction along some particular line for one or both of the meetings has met with the approval of almost all who participated. And since we are all agreed that the man who clinics or works at a dental meeting gets the most good out of the meeting, the school of instruction idea should appeal to all. The expense of having the outside demonstrator conduct these schools might be shared by two or more societies who had arranged meetings on consecutive days.

(2) *Membership.*

The reorganization has brought out a very large number of men into Society work. This Society has enjoyed an increase of from 100 per cent to 150 per cent in its membership to date. Between 40 per cent and 50 per cent of the ethical practitioners in the state are now members, but it seems to me that a total membership of 1,000 is both a laudable desire and one possible to attain, so I would urge that the enusing year be made a campaign for members' year as well as a year devoted to profitable study. Each District should put forth all ethical endeavor to increase its membership. This can be accomplished if every man will help. It should not be left to the Membership Committee alone. The life of our State Board of Dental Examiners was threatened during the last session of the Legislature, and it would seem that it may be necessary that our Legislative Committee be backed by all the practitioners in the state if we are to guard properly our professional interests.

(3) *State Library.*

A recent interview with a member of the State Library Commission has suggested three ways in which the State Traveling Library may be made of use to the Dental profession.

(a) As a means of enlightening the people in general on the fundamental truths of ethical dentistry.

(b) As a means of circulating approved text-books and literature among public school children.

(c) To provide collections of standard dental works for circulation among the dentists of the state just as similar collections are distributed among clubs and study groups along other lines.

I would suggest that a committee be appointed to investigate this subject with power to arrange details. Such a committee might, with profit, examine the portion of the public school physiologies bearing on the teeth, with a view toward gradual selection and revision. I take the liberty of making these last suggestions because it seems to me that the present organization of this Society makes it entirely possible for us to do a great work along these lines.

I wish to take this opportunity to express publicly my thanks and appreciation of the many kindnesses and co-operation shown me during my work as Organizer and Superintendent of District Societies. This cordial support from the profession at large is the one thing that has made it possible to attain any degree of success.

REPORT ON THE TAGGART INLAY LITIGATION.

BY DR. B. F. PHILBROOK.

Mr. President and Members of the Iowa Society: The week that the National Society met at Birmingham, I was summoned to Washington, D. C., as a witness in the Taggart inlay case. To acquaint you with what the Taggart inlay case is, that you may all understand it, I will say that you all undoubtedly last fall got a circular from M. F. Finley containing an appeal for contributions to determine the case brought by the Taggart Inlay Company for an infringement. I will state what the infringement consists of. Dr. Taggart had patented a process of making the cast inlay, not only the machine, but the process, and it is the process patent they are fighting. His process covers the taking of the impression of the tooth cavity or surface with a wax; it covers the support of the wax by the sprue, be it wire or wood, match or toothpick; it covers the painting of the wax model with camel's hair brush to prevent air bubbles; it covers the disappearing model, the burning out the wax; it covers the investing material; so you see that if they win the case against Dr. Boynton for this process patent it establishes a precedent that will require every dentist in the United States to pay this company a royalty during the life of the patent. Now there is no fight on the Taggart machine at all, none whatever. Twelve years ago this month—I think from this very platform—I read a paper on the cast inlay. You will find it in the proceedings of our society in 1897. It was crude at that time but my acquaintance with the cast inlay and the experiments brought my individual knowledge of the cast inlay up to what Dr. Taggart had patented in 1907. To make that clear to you, the attorney in Washington submitted to me fifteen questions covering this process and I was able to answer every one in the affirmative with the exception of that relating to the sprue. I used a wax sprue in place of a wooden or wire sprue. When the case was brought against Dr. Boynton, Dr. Finley assured me that they had no knowledge whatever of this work being done prior to the time of the patent, but they felt sure that somewhere in the United States some man had done this work and they sent out this appeal. I immediately responded and told him I thought I could give some evidence prior to Dr. Taggart's inlay work. Dr. Simpson, of Wichita, Kans., responded in the same manner; Dr. J. O. Ball, of Mount Pleasant, Iowa, the same, and we were summoned to Washington. I was there and gave testimony the 29th of March. I want to call your attention to the fact that this is a fight of the profession against this process patent. My attorney told me, after taking my evidence, that he thought it was sufficient to win the case but you must remember this: That those few men in Washington cannot bear the expense, the profession at large must pay part of the expenses. I want to impress it upon the dentists of the state of Iowa that we must contribute to this defense to keep this case in court. We have the evidence. We have as good a patent attorney employed as there is down there and he seems to understand his business and is determined, and if we can keep the case in court I think that the defense will win the suit. Now if there is any questions that you want to ask I will be glad to give you any information that I can.

Dr. L. L. Poston:

Will you give a short synopsis of what you gave in that paper?

Dr. Philbrook:

Well the paper was simply a discussion of the method of making large restorations. The paper and my experiment was for the purpose of restoring molars, and I was working on the idea of restoring molars in preference to crowning. I was trying to devise a means by which we could contour a molar and do away with crowns.

Voice:

Did you get any pressure on it?

Dr. Philbrook:

I got a pressure on it and that was illustrated before the commission at Washington. The only place that I did not cover the Taggart inlay or the Taggart process was the use of a wax sprue. I took a piece of wax, rolled it between my fingers into about the size of a match or smaller and attached that to the wax impression of the cavity with a hot spatula and invested that. I put two sprues in these large fillings with the idea of boiling them out with hot water. That is the way I did when I read that paper here. Pour the hot water in through one sprue and wash it out through the other. Otherwise the method was practically what it is today. As I told Dr. Finley, the reason we did not have cast inlays earlier was that I read my paper before the wrong society. Taggart read his before the New York Odontological and created a whirlwind. I read mine here and it was not very much heard of. It is identically the same method of procedure.

Dr. Taylor:

Did you have a machine for casting at that time?

Dr. Philbrook:

That is a good question. When I was at the World's Fair I took a little course under old Dr. Carroll in casting aluminum and I used the Carroll casting machine. The machine I used for casting inlays I got from that. For casting plates I used to force the aluminum into the crucible by the breath. I had a tube at that time or a pipe attached to the cover and I blew in it and I do some casting that way yet. You can cast gold by placing a little cover over your matrix and blow your gold right into the matrix. That is, the way I cast those early inlays was by the pressure of the lungs through the mouth.

Voice:

I wish you would tell us what the royalty would be in case this goes through.

Dr. Philbrook:

That I can tell you nothing about. That is in the hands of the inlay company, but I can tell you some things and the other gentlemen of my age here can bear me out. I find in talking with the profession throughout the state where I have been, not only in this state but in others, they have an idea that they can evade this royalty if we do not beat them in the Supreme Court. They think they can beat it by keeping their casting machines out of sight. That makes some of the older brethren think of trying to prevent paying the Goodyear Company license. The Supreme Court gave them authority to come into your office and nose around and if they found even a cover or any part of the apparatus it was prima facie evidence and you had to come in and pay them a royalty of $50 a year. The minimum was $35 a year. I practiced in a little town and they taxed me $35 a year. The same thing will be true of the Taggart case if they win. They will make the royalty what they please and we will pay for it.

Dr. Taylor:

If you have a Taggart machine how about that?

Dr. Philbrook:

I have not talked with any of the Taggart inlay people. I know that there are a number of dentists in Chicago who sympathize in this movement and it strikes me that they are parties to the Taggart Inlay Company. I have talked with one or two of them when I came through Chicago and they were very much exercised to find out what I knew and I told them that I knew we had the evidence. Dr. Simpson, of Wichita, Kans., has the method exactly as Taggart has it today and Dr. J. O. Ball had one nearly as perfect as Dr. Simpson and then I came on after these two other gentlemen. I read their evidence, the evidence of Dr. Ball and Dr. Simpson; it was there in typewriting before the commissioner. The case is on and they are still taking evidence, I presume, with the idea of submitting this to the Supreme Court, and whatever the Supreme Court says in this matter we will have to abide by but our attorney assures us that we have the evidence to defeat the case.

Dr. Taylor:

I think the doctor here and Dr. Ball and the doctor from Kansas should be arrested for not giving this to the profession before Dr. Taggart did.

Dr. Walsh:

Is there any difference between the wax sprue or the wooden sprue or the steel sprue? What is the difference? That in my opinion would be the point it would practically hinge on—the use of the sprue. It is the use of the thing rather than the thing it is made of as I understand.

Dr. Philbrook:

Well, Dr. Simpson used a wooden sprue. His testimony covers that case entirely. As I say, we have the evidence.

Voice:

Where will we find a copy of that paper you spoke of?

Dr. Philbrook:

You will find a complete copy of my paper before the Iowa society in 1897 in the proceedings of this society for that year. I did not give a clinic on that work here; I simply told about the possibilities of cast inlay work, that is all. Dr. Monfort and Dr. Begum discussed that paper and you will find the discussion also in the proceedings. I think they were the only gentlemen of the society that discussed it at that time.

Dr. Hinkley:

You have demonstrated that, have you, at some time? There are those who know of your having used this process?

Dr. Philbrook:

Oh, yes; yes, sir. That brings back to mind another thought I had forgotten which this gentleman called to mind. The only question that Taggart's attorney propounded to me in cross examination was what I used as an investment compound, which opened up a very nice way for me to show that this claim as to investment compound is preposterous. My answer was that I used a commercial investment compound made and sold by the Carroll Aluminum Company of New York City and called Carroll's investment compound; that was as long ago as 1893; and said to contain one third plaster of Paris, one third marble dust and one third silicate of sodium. Now how far is that from the present investment compound? They are claiming a patent on the investment compound and here it has been used more than ten years prior to the trial.

Dr. Walsh:

Did you use the camel's hair brush?

Dr. Philbrook:

I did; I used the camel's hair brush; that is a very old stunt and was taught to me by Dr. Carroll in painting the model for cast aluminum. So it looks as though this matter was really of vital importance. It is of vital importance from the fact if we do not keep this case in court, and the court gives the Taggart Inlay Company a decree, we are bound to pay their license. Any gentleman who wants to get any further information in the case if you will write to Dr. M. F. Finley of Washington, D. C., he will send you copies of the patent and of the specifications in the suit where Dr. Boynton was cited to appear to defend against the infringement. This was brought up at Birmingham by Dr. Finley, who is a member I think of the National Dental Association, but I have not seen any reports on it so I could not tell you what was done.

REPORT OF COMMITTEE ON LEGISLATION.

READ BY DR. J. B. ENTRIKIN.

To the Iowa State Society:

The legislative committee wishes to report that the thirty-third general assembly so amended the law that henceforth dentists are exempt from serving as jurors. We further would like to read to you the attorney general's late advice upon law enforcement.

THE ATTORNEY GENERAL'S ADVICE.

Attorney General Byers suggests to the various law enforcing organizations of the state that their duty henceforth will be to co-operate with the sheriff and county attorney, and in case of refusal or failure on their part to correspond with the attorney general, who will take such failure as sufficient warrant for removal proceedings.

This is important at the outset, for a great deal of the success of the new laws will depend on the spirit in which they are received by the officers whose duties are defined. If the various law enforcing societies should continue to act independently and the attorneys and sheriffs should come to the conclusion that there had been no particular change, a serious stumbling block would be put in the way that might just as well be avoided.

All that is necessary now is to point out to the county attorney and sheriff that the law is not being obeyed. And this is not confined to liquor laws. It makes no difference what the statute, it is the duty of these officers to see that it is enforced. It is not necessary for private individuals to hunt up evidence, nor to swear to informations. For that matter it is not necessary for them to point out an infraction of the law. The county attorney and sheriff must take cognizance of law infraction on their own motion. But no one could fairly be heard to impeach an officer's record who had not pointed out to the officer wherein he was failing of his duty.

There need be no fear that the attorney general's office, during the coming two years, will fail to attend to its part of the work. The attorney general has been given great supervisory powers, and they have been given at his suggestion. It is safe to assume that he will use them to bring about a regard for law in the state. In large measure this is his reform and he has not only the warrant of the statute but a deep personal interest in the success of the experiment to spur him on.

The state owes a large debt of obligation to Attorney General Byers. It was his letter assuming the duty of law enforcement that changed the policy of the state. It has been his leadership that has put Iowa at the very head of all the states in respect to enforcing law. No state in the union has half so drastic provisions as Iowa, not even making allowance for the partial emasculation of the removal statute. For this the attorney general may claim the honors."

J. B. Entrikin.
F. T. Breene,
J. B. Monfort.

Dr. Entrikin:

I think this ought to be known because in any case that you know of, that is not legally in the practice of the state, you can turn to your sheriff or your county attorney and if they take no cognizance of it you can then call the attention of the attorney general to it. It relieves us of a great deal of trouble in getting evidence. Often you know of things that are going along that you or your friends do not want to be implicated in and you just go to your sheriff or to your county attorney and tell them to look up the case.

REPORT OF SECRETARY OF STATE BOARD OF DENTAL EXAMINERS.

BY DR. E. D. BROWER.

I want to say right here that the trouble in handling the violators is that the home men get weak kneed when it comes to prosecuting a man; they are afraid it will react upon them and Dr. Entrikin explained as to the duties of the attorney general and that wipes that all out. It is perfectly easy. All you have to do is to call the attention of the county attorney to the fact that there is a violator in the county and he attends to it. You don't need to prove anything or get up the information. The county attorney does all that. And the fact is in about ninety per cent of the violations, if the county attorney calls on them once, that ends the trouble, they will disappear. In the five or six years that I have been on the board we have never brought a suit but it is true that in a few cases it took me two years to get rid of them, especially a fellow that hasn't a diploma and could not come up for examination. That did hurt! There is one fellow in Des Moines that has barnacles so thick that you couldn't step and I could not get any Des Moines man to close him up; they would not say anything. Outside of that I don't know of any man practicing without a license within a year or two possibly. We had a case recently, a second year man that got so busy during the summer that he forgot to go back to school. But he concluded to quit before the next fall all right. One letter stopped him effectually but it usually takes more than that. If you members will follow the report of Dr. Entrikin you will find it will be simplified; no one will have to expose themselves in any way. I want to say for the other members of the board that they have worked faithfully right along regardless of pay. I shall not give you all the statements—probably it would not be interesting to you—of receipts and payments, but we have paid out our expenses and the income has not been sufficient, and never is during the year, to pay expenses. The June meeting is the one that brings in the money and it took every dollar to pay the expenses and by the state taking our money away from us under a technicality it will leave us in the hole the next three or four years before we can get even, even if the applications for licenses are as large as usual.

Pres. C. W. Bruner:

I think it would be of interest to the society at this time to state how that money was taken from the board upon a technicality. You might explain what the technicality was, Dr. Brower.

Dr. Brower:

It was under the law of 1900. Dr. Entrikin was one of the men that was interested in getting that law passed. It is the best law we ever had. It provided those things which you have got to have in order to get the law passed, among them that any surplus in the hands of the treasurer of the dental board the first of May each year must be turned in to the state treasurer. In 1904 there was a law passed that was considered at the time one of the lovely things that happens occasionally in the legislature, a law governing boards and commissions, of which there are about forty in the state, including the dental board, providing that all moneys should be turned in to the state treasurer every month, collected by all boards and the bills incurred. Of course we have to take our bills and present them to the state for payment. We are always out about two months before we get any money. The way we lost this thousand dollars was under this technicality. A. H. Davison got a decision from the attorney general that any surplus in the dental board's account since 1904 could be charged off to the general fund and in 1905 and 1906 we had a surplus and were saving it up for 1907, which we knew was to be a short year; saving it up so that we would have enough money to pay our expenses. The surplus of those two years the first of May amounted to $988.98 and it was charged off without the knowledge of the governor or anybody but the state treasurer, and I don't suppose he knew much about it. And they assured us that if we presented a bill to the legislature asking the return of that money to our credit they would see to it that it was passed. Well we got the bill into the legislature but even the man that presented it forgot to ask about it until it was turned down by the committee. Publicly I should not say who I think was the cause of having it turned down but it was a committee that did not even ask for information and it was simply sponged off the slate and we were holding the sack; we are holding the sack yet and always will; we will never get it returned and we will simply have to wait until the funds of the board will wipe out the deficiency of a thousand dollars. But we have gone on and done the work just the same and will continue to do so. This year we will have two new men. We lose Dr. De Ford. He has been a good worker; and there will be a resignation by the first of August of our best worker on the board and we hope to have two good workers in their places. I want to say gentlemen, that the board work has got to be of some importance and it is growing every year. I went off the board 22 years ago and my share of the spoils was $13.50 and there was very little work done then; there was very little to do but more dentists have come into the state, and the thicker they get the more work there is for the dental board, and I am glad to say that Iowa is among the best of them. The dentists of Iowa are recognized the world over. We are not the little fish and laughed at as we were ten years ago. I can say that on authority. We were a laughing stock ten years ago but now we are making them sit up and take notice. Why when Dr. De Ford went to the national meeting this year what was done for him? They found a place for him on the legislative committee. They have never had a member of that committee outside of an officer of the national association. They made a place for him on the legislative committee—the first time it has ever happened.

During the year we have held two examinations; there were 96 applicants in the June examination and 5 in December, making a total of 101. Of these, 7 passed on first examination and 27 failed; 13 passed on second examination and two failed; 2 passed on third examination.

We have established practical examination in both operative and prosthetic dentistry. The applicant must pass 80 per cent on practical work as well as 80 per cent on written.

In the matter of reciprocity, the list remains the same as last year; namely, Vermont, New Jersey, District of Columbia, Indiana, Michigan, Minnesota, Ohio, Nebraska, Kansas and Oklahoma. We have the largest list of exchanges of any state and it should be doubled. Since the reciprocity law was passed we have issued 26 exchange certificates to other states and 5 interchange licenses to men from other states.

We have had more trouble the past year with men practising without license than the year before on account of a larger per cent of failures in examinations. We also have had more help and better help in running violators down. At present there are a few men drifting from one place to another without licenses but I think that the number is the smallest that it has been at any time in the five years that I have been secretary.

A wrong impression still pervades the minds of many that a man may practice in another man's office without a license; but one license is only good for one man.

The most of you have received the '08 report of the Board of Governor. In this report I gave a list of dentists in practice by counties. While I know this has errors, it is the best 1 was able to do. My main object in publishing this list is to give dentists an opportunity to assist the board in making corrections of addresses. The changes each year are many and it is impossible for the secretary to keep a correct list without help from every county in the state.

No new legislation affecting the state dental law was enacted the past winter and the dental board is still in existence for another two years.

We wish to thank the dentists that assisted the board in their work for the past year and I wish to state that the list contains more than 100 names.

While the board has practically done the work since last July without pay, we have continued the work as mapped out.

Any one not receiving a report or wishing another can have same by addressing the secretary and enclosing a three-cent stamp. Up to date it has cost the secretary over $35.00 to mail the reports, but he hopes some day to get his money back.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

HONOR TO WHOM HONOR IS DUE.

The month of January, 1910 is to be one of exceeding great interest to the dental profession in view of two events which are to be held in that month. One of these is the complimentary dinner in New York January 22, 1910 in honor of Dr. James Truman of the Dental Department, University of Pennsylvania, and the other is the annual clinic of the Chicago-Odontographic Society on January 28 and 29 followed by a testimonial banquet the night of the 29th, in honor of Dr. G. V. Black, of Chicago. It is really a fitting and beautiful thing for the profession to pay this tribute to these two men. In all the history of dentistry there has never been a man who has more steadfastly stood for the highest ideals of professional life than has Dr. James Truman. He has never sought honor, glory, or the homage of men, and it is therefore all the more becoming that these should come to him without the asking. Men of his mold are not made every day, and it is well that just recognition should be given to such a man for the encouragement of others that they may emulate his beneficient example.

As for Dr. G. V. Black, the Editor of this Journal has so frequently expressed himself on previous occasions regarding the worth of this man to the profession of dentistry and to the world at large that it seems difficult to add anything at this time. The profession from one end of the land to the other will turn out to do him honor and when the night of January 29, 1910, shall have passed away it will record one of the most appropriate functions that the profession of dentistry has ever held.

Long may these two men live to grace a profession which has been so bountifully enriched by their character and their genius. They are both entitled to all the honor that can be given them, and the profession will be enobled by the tribute it is paying to their worth .

STATISTICS ON SCHOOL CHILDREN'S TEETH.

A great deal of interest is being taken in this subject in different parts of the country and some of the statistics are extremely interesting and significant. One of the latest to compile statistics on the condition of the teeth of school children is Dr. T. T. Rider of Missoula, Montana, and he has been kind enough to send in the results. He has examined the teeth of about 1,900 children with the following result:

Sex.	Boys.	Girls.
Number	956	944
Permanent teeth needing attention	2,418	2,567
Temporary teeth needing attention	2,798	2,004
Teeth or roots to be extracted	266	257
Occlusion good	189	199
Malocclusion class 1	477	417
“ “ II. A.	58	56
“ “ II. A. Unilateral	27	26
“ “ II. B.	35	33
“ “ II B. Unilateral	25	18
“ “ III.	81	97
“ “ III. Unilateral	58	58
Gums needing treatment	22	41
Teeth needing cleaning	943	923
Number of children using tooth brush daily	229	446
Occlusion mutilated because of loss of permanent teeth	68	.....
Mesial relation of molars on one side, distral relation on the other	8	.....
Permanent teeth extracted	334	.....
Abscesses	68	.....
Abnormal frenum labii	171	.....
Organic defects	55	.....
Number of children having no cavities	97	.....

Number of peg laterals	13	.....
Teeth crowned	34	.....

T. T. Rider, D. D. S., Examiner.

Here we have recorded only 97 children out of 1,900 who have no cavities in their teeth, and the aggregate number of teeth temporary and permanent, needing attention amounts to nearly 10,000. The number of permanent teeth extracted among these children was 334—most of them presumably first permanent molars, and one can imagine the havoc produced by the early loss of so many of these teeth. This may in part account for the many cases of mal-occlusion.

In connection with this examination Dr. Rider at the suggestion of Dr. Richard A. Summa of St. Louis compiled data on the possible effect on occlusion of the eruption of the cuspids before the bicuspids or vice versa, as follows:

HOW OCCLUSION IS EFFECTED BY THE ERUPTION OF CUSPID AND BICUSPID TEETH.

Cuspids erupted first	260
Occlusion good	43
Malocclusion class I.	98
Malocclusion class IIA.	18
Malocclusion class IIA unilateral	11
Malocclusion class IIB.	16
Malocclusion class IIB. unilateral	6
Malocclusion class III.	25
Malocclusion class III. unilateral	25
Occlusion mutilated	18

Bicuspids erupted first	351
Occlusion good	63
Malocclusion class I.	181
Malocclusion class IIA.	19
Malocclusion class IIA. unilateral	7
Malocclusion class IIB.	15
Malocclusion class IIB unilateral	10
Malocclusion class III.	23
Malocclusion class III. unilateral	26
Occlusion mutilated	7

Statistics compiled by T. T. Rider, D. D. S.

Dr. Rider adds: "Of the 1,900 children examined, 260 indicated the earlier eruption of the cuspids, while 351 showed the previous eruption of the bicuspids. In the mouths of the other children these teeth had all erupted or the child was too young for me to determine the order of appearance of these teeth. By comparing the results with the occlusion of the entire number we note that the eruption of these teeth has no effect whatsoever on occlusion. The results appear to be negative."

These statistics should be studied with great care as indicating some of the real conditions existing in the mouths of the children of our public schools. When the people are made sufficiently alive to the significance of this question by the revelations made in these impartial examinations we may hope for some reform along this most important matter.

THE EDITOR'S DESK.

In accordance with the promise given my readers last month, I am pleased to begin in this issue an account of an automobile trip through Europe, written by Dr. Fred W. Gethro, of Chicago. This series will prove most interesting and I can assure my readers a rare treat.

AN AUTOMOBILE TRIP THROUGH EUROPE.

In making plans for an automobile tour in Europe one of the first and important questions that an owner has to decide is, whether he shall take his car or rent a machine on the other side. Naturally the first query is about the probable expense of shipping a car. It costs about $500 to ship a touring car from Chicago to Europe and return. This includes box, boxing and all details connected with shipping. In most parts of Europe touring cars can be rented for about $30 a day and usually includes everything except the living of the chauffuer and his tips. For a short trip it is manifestly cheaper to rent, but for a trip of over thirty days it is just as cheap to ship a car from this side. For trips of sixty days and over, it is much cheaper to take your own car.

Here are some of the things that must be done to ship a car across the water: A strong demountable practically water-tight box must be made. Fig. 1 will show the need for a substantial box. This box is put in the hold of the ship and must be strong enough to support other automobiles, machinery or anything else that may be placed on it. The car should be registered with the customs officer here, else you are sure to have trouble on the return. No improvements other than necessary repairs are permitted. If repairs or improvements are made to exceed 10 per cent of the original value of the car, duty on the full value of the car would be collected, which is 45 per cent.

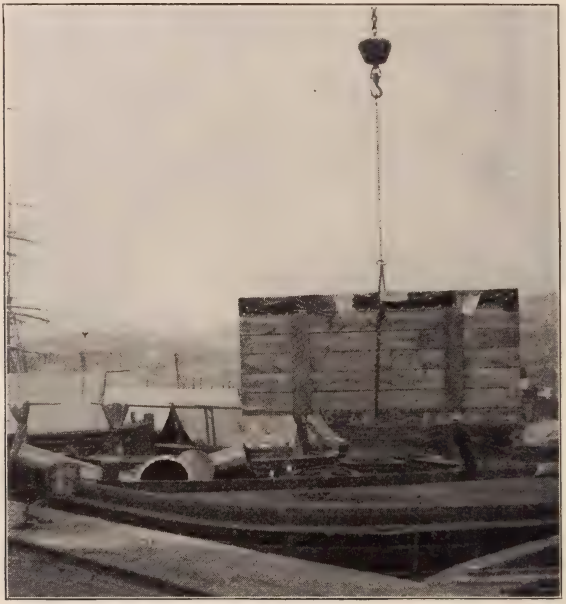

Fig. 1.

The car should be shipped one sailing ahead of the party. If shipped on the same boat it will probably take several days after arrival before it is unloaded. Arrangements must then be made for uncrating, storing the box, and arranging the duty with the customs officials. Very frequently this must be done in a foreign tongue. A license must be obtained for some of the countries. One unmounted photo of the car and five of the driver are required for a license in France. These and many other details have to be met in shipping a machine. I can readily see how the prospective tourist is frequently prejudiced in favor of renting. However, all of these details and petty annoyances can be easily eliminated.

Some four years ago Dr. Arthur D. Black and the writer took a car abroad for a two months' tour. At that time touring abroad was not as common as it is today and it was necessary to draw our own plans, have a demountable box made and attend to many other details too numerous to mention. Wheels, lamps and all accessories were removed, all brass was covered with a coating of vaseline, and other such details were necessary. Note the difference this year. I arranged with a forwarding company for the round trip, they to attend to every detail. A man was sent to the garage to measure the car. Not a lamp, wheel or anything was removed. The box was made in six pieces, two sides, two ends, top and bottom. Here is my experience: At eleven o'clock Saturday morning I took the car to the forwarding company and it was immediately driven onto the bottom of the box, after gasoline and water were removed, the machine was jacked up and well braced supports were placed under the axles. The wheels were securely blocked and then the sides, ends and top were attached by long bolts. At two o'clock it was put aboard a wagon and taken to the freight yard. At four it started for New York, where it was placed aboard the steamer Berlin, sailing for Genoa, Italy. We sailed on the French line to Havre, France, and then proceeded to Paris to make necessary arrangements for the customs duties for the various countries, namely, France, Italy, Switzerland and Germany. Any member of the Touring Club of France, by depositing the amount of the duty with the club, can receive

Along the Mediterranean.

what is called a Triptyque. The cost is nominal, being seven francs, or about $1.40. This permits him to take his car in and out of that country as often as he pleases during a period varying from three months to one year. The only requirement is that the custom house officer at the frontier has to visé or sign the paper when the owner enters or leaves the country. You simply hand him the paper and he signs and returns it and you go on your way. Sometimes he will look at the number of your engine and see if the car checks with the description on the Triptyque. It usually takes from two to five minutes to attend to this procedure. The touring club issues several very valuable guide books, one for Northern France, one for Southern France and one for the other countries. All of the towns are arranged alphabetically, giving accurate detailed information about hotels, inns, garages, etc. Hotels that have complied with the requirements of the club are starred. The requirements of the touring club have effected a wonderful improvement in the hotels and inns. For instance, for the sleeping rooms the club specifies a certain size of

A Scene Along the Italian Riviera.

wash bowl, nothing smaller will answer. No portieres or other hangings that catch and hold dust are permitted. It is quite an asset for a hotel to have a sign hanging in front reading, "Recommended by the Touring Club of France." Maps and any other information regarding the various countries are obtainable at this wonderful club. Membership also entitles the holder to discounts at numerous hotels, garages and auto-supply places.

After making all arrangements we took an afternoon train, "The Rapid," for Genoa. This is the fastest train and takes about twenty hours. It was our first experience on the sleeper of the Continental and we considered it to be inferior to the Pullmans of our country. Built on the small compartment plan with either two or four berths in a compartment, with poor lighting either day or night, they are far from being attractive. However, we arrived in Genoa the following morning and went immediately to the forwarding agent. We were informed that the car was on the lighter in the harbor and we could have it in two days. Things move terribly slowly in Italy, but this was too much. We told the officer of the company that we must have the car right away. Well, he would do his best. We had him take us to the lighter, and in about ten minutes the box was

The Casino at Monte Carlo.

lifted from the lighter by means of a powerful steam crane and placed on shore. (See Fig. 1.) Half a dozen men worked opening the box and in less than two hours we were riding in the car. Not a thing necessary excepting to put gasoline in the tank, water in the radiator and a little air in the tires. I shall spare you from the proverbial "started on the spark" or "on the first turn." As a matter of fact, I had to turn the engine twice because I use magneto only.

Along the French Riviera.

Here we were in Sunny Italy on a beautiful afternoon with a car ready to respond to any requirement. It seemed as though we could hardly wait.

We drove to the gate and had our triptyque endorsed and then we were turned loose on the public. The following are the printed instructions copied from the Italian laws:

"Side.—As a rule, keep to the right. In towns with a population of over 25,000 inhabitants the municipal authorities may order vehicles to keep to the left; in this case, notice to this effect is posted at the gates of the town. Where there are tramway lines, keep to the left, unless special notice to the contrary is posted (see observations).

"Circulation.—Attention ought to be paid to carts, carriages, horses, cyclists, etc., especially in curves, even when the car is on it's proper side.

"Special Notice.—Leaving Genoa, keep to the left."

Most of the tramway lines have been put in by the English, and, of course, they follow the left side of the street. If a strange driver can go right in Italy he is a wonder. However, the authorities are not strict on this point and we were not molested.

Well, here we were sailing through the streets of Genoa, the chief seaport of Italy, with its population of 155,000. It is wonderfully situated on the sunny slope of the mountains, with a magnificent harbor. The narrow winding streets of the city, filled with people dressed in their varied brilliant colors, presented a novel scene. We proceeded to the center of the town and went into the office of the forwarding company to make sure all arrangements were understood for shipping box to Hamburg, Germany, for we were to sail from Hamburg on the return trip. It took about fifteen minutes to arrange all details and then we returned to the car. Imagine our surprise to find three guardie (policemen) guarding the machine. At first we could not understand. I started to crank the car but they refused to permit that. Of course, they all talked at one time and in a very few minutes we were surrounded by a large crowd. We had had the car less than half an hour and it was very evident we were

Bathing in the Mediterranean.

arrested. But why? We had no other number than the Illinois license number, but none other was required. Finally an Italian, speaking English, informed us that we were arrested because the car had stood in one place for more than ten minutes. Our explainings were in vain so off we had to go to the station, escorted by a large crowd and three officers. We explained to the English speaking man that we were strangers and had only been in the city a half hour. After a lot of heated conversation, which we did not understand, we were released. First battle won and no blood shed. We spent part of the afternoon "doing" the city and later drove out to the Campo Santo, one of the largest cemeteries in Italy. Everybody recognized that we were strangers and they eyed our car with much curiosity. An American car is built on very different lines from a foreign car and runs much quieter. At all times during our trip we carried our American flag and the flag of the country we were in on the dash board—one to starboard and the other to port.

We had decided to spend the night in Genoa, so made our way to the new hotel, The Miremare, one of the best appointed hotels of Southern Europe. It is charmingly situated on a high bluff overlooking the bay.

The next morning we left Genoa and followed the Mediterranean over what is known as the Italian Riviera. The roads for about one hundred miles are said to be poor, but according to our standard they are fine roads.

The Riviera is a narrow strip of coast line extending along the beautiful blue Mediterranean. This region is regarded as the most beautiful and fascinating in all Italy. As we drive along this wonderful road, first down at sea level, then later climbing, sometimes a half hour at a time, we would find ourselves on a rugged promontory with the sparkling Mediterranean hundreds of feet directly beneath us. Oh what views! For miles and miles we drove for several days, first a long climb, then a tunnel, then a long descent, with ruined castles, old churches and numerous towns continually coming into view, and all this time the snow-clad Alps formed the northern boundary of our vision and the Mediterranean ever present to make the wonderful background for this gorgeous scenery. We spent the night in Alassio and at six in the morning we took our first dip in the Mediterranean. Took lunch at San Remo, a town of 17,000 inhabitants. I cannot refrain from telling of an incident that happened at the hotel in San Remo. The proprietor noticed that we registered from Chicago, so he immediately told us he had been in Chicago during the World's Fair. During the conversation that followed, one of our party asked why the hotels did not serve cream, and his reply was that if we would pay as much as we paid at home he would give us all the cream we wanted. He evidently thought that we had little reason for complaint for he continued in his broken English, saying: "In America you make a chicken do a hundred eggs and he is still a chicken." We laughed heartily and had to admit he had a good one on us. We reached Ventimiglia, the frontier town of Italy, all too soon. The triptyque was viséed and we were off to Mentone, the French frontier town about a half a mile beyond. The customs official signed the triptyque and then asked if we had any tobacco. We told him we had not and he waved us adieu. An extremely pleasant feature about touring in a machine is that the officers are very courteous towards automobilists. We crossed the frontiers many times and not once did an officer ask us to open our baggage. It is very evident that they are very anxious to make it pleasant for touring parties.

From Mentone we took the world-famous Corniche road through Cap Martin and then on to Monte Carlo. Monte Carlo is a part of the municipality of Monaco, a district with an area of less than a square mile and about 15,000 people. There are no taxes here and they issue their own money and postage stamps. We hear much of the gambling part of Monte Carlo but comparatively little about its wonderful beauty.

Although we were there in the dullest month of the year, July, —the season being at its height from January to March—we found every table overcrowded. The inhabitants of the principality are not admitted; others can get cards of admission when properly identified. Pardon us if we refrain from telling just where we left—or just how much. The beautiful building with the wonderful furnishings and paintings bear testimony that all are not winners.

Next morning we counted our money and started for Nice. We followed the celebrated Corniche road, which was constructed under Napoleon I.

(To be continued.)

BOOK REVIEWS.

Modern Dental Materia Medica, Pharmacology and Therapeutics, by J. P. Buckley, Ph. G., D. D. S. Professor and head of the Department of Materia Medica, Pharmacology and Therapeutics and formerly director of the chemical laboratories, Chicago College of Dental Surgery. Forty-six illustrations. Pages, 383. Price, $2.50. Published by P. Blakiston's Son and Co., Philadelphia, 1909.

When it became known that Professor Buckley was at work upon a book of this character much interest was manifested because of the well-known ability of the author to undertake such a work, and the present volume is a most praiseworthy realization of the anticipation raised at the time of its announcement. Dr. Buckley has written so much on this subject that his name is familiar wherever dental literature is read, and in this volume he has gathered under one cover all of the best and most useful of the many good things he has suggested to the profession. It is useless to attempt a detailed discussion of the contents of the book because it would be difficult to know where to begin or end. But we can unhesitatingly recommend the work to every practitioner or student who is interested in this important subject as a book thoroughly practical, up-to-date and altogether helpful. It is a credit alike to the author and publisher, and the profession is to be congratulated on so worthy an addition to its permanent literature.

Dorland's American Illustrated Medical Dictionary, the new fifth revised edition. A new and complete dictionary of terms used in medicine, surgery, dentistry, pharmacy, chemistry, nursing, and kindred branches; with new and elaborate tables and many handsome illustrations. Fifth revised edition. By W. A. Newman Dorland, M. D. Large octavo of 876 pages, with 2,000 new terms. Philadelphia and London. W. B. Saunders Company, 1909. Flexible leather, $4.50 net; indexed, $5.00 net.

We have given unreserved recommendation to previous editions of this work and the present volume amply maintains the high standard set by former issues. It is a beautiful book profusely illustrated and thoroughly modernized both in spelling and treatment. It is a mine of information in itself and should be in the hands of every practitioner and student.

ATLAS DER ZAHNHEILKUNDE, in Stereoskopischen Bildern, series I., edited by Karl Witzel. Published by Julius Springer, Berlin, 1909.

This is the first of a series of volumes in an Atlas of Dentistry in stereoscopical photos with text in German, English and French. The present volume on Anatomy contains fifty-two plates and this is to be followed by others on Histology, Pathology, Surgery, Dermatology, Bacteriology, Orthodontia, Prosthetic Dentistry (including the prosthetics of cleft palate) and Conservative dentistry.

If the subsequent volumes are kept up to the high standard of excellence established by this one, the work is destined to be a distinct and noteworthy addition to dental literature. We shall watch for subsequent issues with much interest.

CORRESPONDENCE.

Editor DENTAL REVIEW:

I am very busy with the International Congress of Medicine to be held in Buenos Ayres, as one of the organizers of the foreign section or at least that part referring to communications from the states.

The Congress will be held during the exposition which promises to be a great success. There will be a section of pathological dentistry under the presidency of D. Etcheparaborda.

My object in writing is to call your attention and all those interested in the future of the men holding diplomas of liberal professions, to a very culpable indifference in regard to their opportunities. Every two or three years a Pan American Congress takes place somewhere in South America, Mexico, or the United States. Delegates are sent from all the countries interested and usually some from Washington, but they do not understand the language and after a few hours leave the Congress to wander around the streets of the town until the sessions are closed, when they will be in evidence at the banquets and the shows.

There are seventy millions of people south of the United States speaking Latin languages. Every year there is a congress of some sort which is never heard of in the United States, not that the congress is not important but because the United States is ignored. The congress is held in the Rio de Janeiro, a city with a million inhabitants incomparable from every point of view with any other city in the world. If not in Rio, it is in Santiago or Buenos Aires. It is held as the Latin American Scientific Congress, Latin American Congress of Hygiene, Latin American Geological Congress. So that you can see that it is a congress essentially for the Latin Americans. The transactions are published in France, Germany and Italy, where their students go to be educated.

The program of the Pan-American Congress has just been published. I will translate it in full and then make my comments, calling your attention to the fact that there is very little time for getting busy:

"Dr. de la Plaza, the director of the preliminary and provisional work, will let all the delegates to the various scientific congresses know that it is the *universal* desire that all the congresses and delegates aid in the work of the Pan-American Congress." This is from the "Prensa" of Buenos Aires, the newspaper having the largest circulation of any in South America.

Program of the Pan-American Congress, to be held at Buenos Aires:

"1. To study and secure the most intimate co-operation of scientific congresses and the Pan-American Congress.

"2. To study the question of foreign emigration.

"3. To study the question of the exercise of the liberal professions.

(Very important to American physicians, dentists, architects, electricians, etc.; in fact, all those holding diplomas and practicing liberal professions.)

"4. Citizenship in case of civil war.

"5. To study and secure uniformity of laws against anarquism in future congresses."

Article three is the one in which we should be most interested. There are perhaps twenty thousand individuals studying liberal professions in the United States. Where are they going? Greeley said "Go West, young man." I say go where there is a demand for your services.

Some of those twenty thousand individuals have fully made up their minds to return to their native towns, where at the end of a number of years they will have a brick front house, on the main street. These same individuals could return to their native towns after a few years in South America and buy the whole main street—brick fronts and all.

Thousands of opportunities are seized by the Germans, English, French and Italians for bridges, buildings, electric light, water works, railroads, port building, breakwater. I could fill pages, but I am getting off the track. The opportunities are here for physicians, surgeons, dentists, veterinary surgeons. No chance for fads, nor pathys, no osteopathy, no christopathy, homeopathy nor mechano pathy. Brazil and Chile have a particular reciprocity of liberal professions. That is by mutual consent those received in either country can practice in the other.

Brazil is in another combination with the other nations; that is that there is a reciprocity of professional titles existing between Brazil, 18,000,000 inhabitants; Argentine, 8,000,000; Peru, 5,000,000; Uruguay, 1,500,000; and Paraguay, 1,500,000. France has accepted the conditions of the treaty.

I desire to draw your attention to the fact that Chile is not in the combination with Brazil, Argentine, Peru and the others, as Chile holds herself aloof, claiming a very doubtful superiority.

My object in writing to such length is to endeavor to secure your valuable aid in starting the ball rolling in favor of the American schools taking some interest or taking measures to reap the benefit of this already great treaty.

Spain enjoys some rights, that should have been rescinded when these countries ceased to be colonies. Diplomas of Spanish origin are yet legalized without the usual examination formalities in Columbias, Venezuela and Mexico.

Our delegate should have full instructions and ample powers in order to secure all the concessions possible for Americans, American diplomas and American institutions.

In all probability the question will be reduced to the equalization of studies, length of course, hours of professional lectures, and the institutions that are desirous of entering into the combination and accepting conditions of the treaty just as did France through the diplomatic corps. I fully recognize the diplomatic corps must in some manner enter into the transactions, but as our government does not grant diplomas some work must be done by individually interested fraternities and institutions.

I think that the above will fully explain the object for which it was written. In this congress at Buenos Aires the opinions and motions of intelligent American delegates will go very far. The different educational institutions (liberal professions) should immediately place the above information before the National Association of their respective professions and make an effective movement in coming to some definite arrangement by which the American physician, dentist, architect, electrician, can secure the benefits of this great treaty of the reciprocity of liberal professions. There is no subject of such paramount importance as the above that has been touched upon at any previous congress. Chile has usually succeeded in side tracking it or in some way obstructing its consideration. It is now in the official program and must be discussed though you can depend upon it the Chilian delegate will be there to do his level best to defeat it.

Hoping to see something on the subject in the medical, dental and electrical journals, believe me to be very truly yours,

J. CLYDE MACARTNEY,
Montivideo.

Dr. C. N. Johnson,
Editor of THE DENTAL REVIEW:

My Dear Dr. Johnson:—I have just been reading the article, in the above journal, "The Northern Illinois Dental Society and Dr. Taggart."

I feel it is nothing but what we as a profession should do, as there is no question but what Dr. Taggart brought out a method that has been a great benefit to the profession.

It does seem as though the profession should either buy one of his machines or send him the stated amount given in this mentioned article.

Do I understand if a party purchases one of these machines, it gives him the office right to use his patented device, either on his machine or any other machine he wishes to use?

Also, if a party purchasing one of Dr. Taggart's machines, and after using it, decides to use some other device (using the wax and sprue) should sell his "Taggart's" machine to some other dentist, would the fact that he once purchased a Taggart machine protect him and the one that purchased this machine?

Yours very truly,
A SUBSCRIBER.

To the Editor of THE DENTAL REVIEW:

Looking over my old scrap book I found the enclosed doggerel written in pencil on the back of an envelope, and it brought pleasantly to my mind an incident of that record-breaking meeting of the Odontographic Society in Chicago some years ago.

Some frat brothers from the South, tiring of the clinics, were invited by Dr. Case to go over to the Athletic Club. Cards were suggested, but Case said he preferred billiards, so some started to play billiards and some pool, but one good natured idiot insited upon singing the newest song of the occasian, "There Was An Old Man Named Bill." The players all over the hall got to beating time on the floor with their cues until the eminently proper Dr. C. was visibly uneasy, noticing which the noisemakers desisted and order was restored. On my way home, recalling the incident, I scribbled the following, which I here dedicate to those who recall the incident.

Very truly yours,
B. HOLLY SMITH.

Song:—There Is a Young Man Named Case.
Tune:—"There Was An Old Man Named Bill."

There is a young man named Case
Who tinkers on the human face,
And after he has moved it he has greatly improved it
In feature, in beauty, in grace.

This same young man named Case,
Doesn't know a deuce from an ace,
But at billiards or at pool he is very hard to fool,
He sets such a furious pace.

And when this young man dies,
He'll wend his way to the skies,
St. Peter will meet him and at the gate seat him,
To make use of his critical eyes.

He'll do his duty well
Refer some folks to ——ll;
Those who frown or pout will be turned out
At the tinkle of his little bell.

If you want to go to Heaven with Case
Be careful of every grimace,
Mind out what you drink, what you do and what you think,
For it all shows up in the face.

CHORUS.

For it all shows up in the face, for it all shows up in the face,
Mind out what you drink, what you do and what you think,
For it all shows up in the face.

ORIOLE.

NEW YORK LETTER.

New York, Dec. 14, 1909.

My Dear Mr. Editor:

Tonight we had with us, before the First District Dental Society, another one of your very well qualified young men as essayist. Arthur D. Black, M. D., D. D. S., of Chicago, read a paper entitled, "Systematic Indexing and Classification of Our Dental Literature and Its Possible Results." With it was an exhibit of about 40,000 cards, indexing articles from 1839 to 1903, in the *Dental News Letter* and *Dental Cosmos.*

I am quite sure that the title of the subject kept many from attending the meeting thinking the subject would be "dry" or uninteresting, but there was more in it to hold the attention than many other papers which we have listened to during the past year, and a wealth of substance to stimulate thought and activity. It was a paper to "stir" and made one feel that at last something really tangible had been given us whereby the riches in literature that we have been given a glimpse of when we were not able to use them were being placed within our grasp—made accessible by this excellent system of indexing. I have a library of dental literature, the periodical portion of which for the past twenty-five or more years has been practically useless to me owing to the almost impossible task of using it as a reference medium because the indexes for each volume for each publication must be handled in an attempt to locate subject matter bearing upon any particular subject. That such a comprehensive system as Dr. Black has elaborated upon existed cannot be generally known, else more editors would be compiling their indexes according to its plan.

The gravity of one of the remarks made by the doctor in the reading of his paper that "scientific investigation in dentistry has been on the decrease" and that "dental science needs the ability to study" can be accounted for by the fact that when an article is published it becomes practically lost in the avalanche of other literature following it, none of which could be properly tabulated by the methods of indexing at present in general use.

Dr. Ottolengui of New York made that phase of it felt in his remarks following the calling for subject matter, on how to plate gold. Dr. Black explained how simple it was to index all articles whether papers, discussions or mere items of interest as we find them included in essays upon which they bear no direct relationship—all can be so classified by this system that everything pertaining to any given subject appears under one general title or its subdivision and of course cross-references can be resorted to and is done by him. Dr. Ottolengui seemed to feel satisfied that the system was most complete for he said to Dr. Black that he would try it in the future in indexing the *Items of Interest.* If the coöperation of all our dental editors could be enlisted in this matter of appending the necessary system numbers of Dr. Black as well as the page numbers of their journal, it would save a great amount of labor for future index compilers as well as vastly stimulate and improve the character of dental writings.

Dr. Black asked the question, "is it not true that the majority of practitioners of dentistry know only of what has happened in dentistry since they entered the dental college?"

Dr. Black told us that the plan of indexing is a modification of the Dewey decimal classification, built upon that system to fit our literature. Melville Dewey is the librarian of the New York State library. All that need to be said for it is that it is so simple, comprehensive and elastic that it is complete.

The use of the plan can involve every phase of dentistry. It will open our old journals and give us access to some excellent writings that have been practically lost. Several attempts have been made in the past to index our periodical literature. One in particular by Dr. Taft in 1886.

Dr. Black spoke of a dental index bureau which was being established in the west, which bureau purposed to index the chief dental periodicals according to the decimal plan and supply printed lists of the indexes each year to its subscribers.

These indexes should interest the professional man who still continues his studies or research, the college educators, students, dental societies, the dental press and others. It gives every indication of success. The present method discourages study.

Dr. Black projected on the screen by means of the lantern a series of illustrations of the system, its divisions and subdivisions, even illustrating to what extreme limits the decimal classification allows. He also showed reports of the study club of the Illinois State Dental Society.

Dr. Black also spoke of his labors in other fields than Illinois. As a sample of possibilities of indexing he had printed for the First District Dental Society a book of 24 pages which was given to the members present. The cover page reads:

Classified Subject Index
to the
PROCEEDINGS
of the
FIRST DISTRICT DENTAL SOCIETY
OF THE STATE OF NEW YORK,
As Published in the Dental Cosmos

1868 - 1909

ARTHUR D. BLACK, B. S., M. D., D. D. S.
CHICAGO.

Presented at the Meeting of the
First District Dental Society of the State of New York.
December 14, 1909.

Dr. W. L. Fitch of Pittsburgh opened the discussion of Dr. Black's paper. He remarked that if dentists had access to such an index it would help more than anything since the first dental journal published in 1839.

Our profession has grown to such proportions that an artificial memory is now a necessity and the subject is of vital interest to the whole profession.

Dr. Arthur Swift commended the tremendous work.

Dr. Ottolengui said that Dr. J. D. White once said to him that his aim was to make the early volumes of the *Dental Cosmos* an encylopedia of dentistry.

He spoke of the topical index to the *Cosmos,* which was printed some years ago, comprising the first 25 volumes.

The idea of box heading in *Items of Interest,* he said, was to facilitate ready reference.

The doctor becoming more general in his remarks about systems and organizing touched on the present discussion as to the reorganization of the National Dental Association. He said that he had been accused of trying to stir up strife but that was not his motive, but an effort to rehabilitate the organization, and also the New York State Dental Association.

Not being a member of the First District Society he could not make a motion but he hoped some one would recommend that a resolution be introduced at the New York State Society meeting calling for a reorganization on the lines of the Illinois State Dental Society. Dr. W. W. Walker spoke up saying "I make such motion," and it was seconded by Dr. Le Roy and others.

Dr. Safford G. Perry, of New York, also spoke to Dr. Black's paper, nothing but eulogy. He said, too, that a medical man high in his profession saw this copy of Dr. Black's pamphlet and his comment was that it is the most valuable thing he has ever seen. Dr. Perry wonders whether the members appreciated what obligations they were under to Dr. Black.

He characterized Dr. Arthur as the worthy son of a worthy sire.

Dr. Black in summing up and in answer to a question as to whether the system indexed titles only said that the index *does* cover what is *in* the articles it indexes as well as the title itself.

A vote of thanks was given to Dr. Black for his magnificent paper magnificently presented.

A collation followed the adjournment of the meeting, but I don't think the doctor had chance to see the spread, so great was the interest in holding him in the main room with his thousands of cards.

At the first meeting this fall of the New York Institute of Stomatology, Dr. John Oppie McCall of Binghampton, N. Y., presented a paper entitled "A Chair of Dental Science in a Medical School." The discussion was opened by H. A. Fairbairn, M. D., of

Brooklyn, N. Y., attending physician to Brooklyn and St. John's Hospitals, and by J. G. William Greeff, M. D., of the German Hospital of New York.

The attendance was small but the discussion grew somewhat lively when members of our own profession spoke. There was a marked difference of opinion as to the value of such a chair. That which impressed your correspondent most was the great want of knowledge on the part of the medical gentlemen, who spoke, as to how much or how little the dental student was taught in anatomy, physiology, materia medica and chemistry. They seemed much surprised when a young practitioner, a graduate of the Dental Department of the University of Pennsylvania, told them that the medical and dental students sat together under the same professors, received the same lectures, and passed the same examinations in these studies. We omitted reference in our last to the first meeting this fall, of the "Old Original"—the First District Dental Society—which under the force of Dr. W. W. Walker's great executive ability is out-stripping all the other New York Dental Societies.

At this meeting Dr. Safford G. Perry read a paper on the subject of "Ethics." The large auditorium of the Academy of Medicine, 17 West Forty-third street, was filled to overflowing for Dr. Perry always brings out the crowd. Naturally, he told us nothing new, for we have heard him along these lines before. But he put his ideas in pleasant language and brought out many salient and telling points regarding the proper professional treatment of our fellow man.

Drs. E. T. Darby and E. C. Kirk of Philadelphia, Dr. Wm. Jarvie, lately of Brooklyn, now retired, Dr. Charles S. Stockton of Newark, N. J., Drs. R. Ottolengui and W. W. Walker of New York, were on the program to discuss the paper, which they did in the order named. Following them a number of others spoke. There could be but little discussion for all agreed with the general ideas put forth but there was an opportunity to express each one's special ideas, and for all to join in praising Dr. Perry for his life-long example of what is accepted as right "ethics."

The New York Institute of Dental Technique, one of our "Young Men's Associations," and the C. D. A. of New Jersey are the only societies which keep up the custom of having a dinner about 6 p. m. prior to the meeting of the evening. This has always seemed to us to be so very satisfactory, giving one a chance to become better acquainted with his fellow practitioners.

The C. D. A. at its October meeting listened to a paper by Dr. Albert Leonard Midgeley of Providence, R. I., entitled "Etiology and Diagnosis of Facial Neuralgia." It was profusely illustrated with the steriopticon. Dr. Midgeley easily demonstrated the great value of radiography in the diagnosis of cases where otherwise it would be mere surmise.

At the November meeting of this society Professor R. H. M. Dawbarn, a noted surgeon of New York City, read a very interesting paper in which he gave some new points on how to operate bloodlessly in regions nourished by the external carotid arteries. He also described methods and remedies for stopping hemorrhage which were new to most of those present. The doctor occupied two hours and as the hour was late there was no discussion but all were much pleased and edified. The New York Study Club, which was organized some years ago, is this year under the able direction of Dr. Chas. F. Ash, as master of clinics.

They have a post-graduate course in orthodontia under Dr. R. Ottolengui; of oral surgery and radiography under Dr. Morris I. Schamberg, and in oral prophylaxis and treatment of pyorthea under Dr. R. G. Hutchinson, Jr. They are doing a very good work. Like some other organizations, they have taken up "Practice Building," etc., and have had some lectures on that subject.

About thirteen, more or less, "disgruntled" and "grouchy" members of our profession have launched a "Bug Club"—*not* confined to dentists exclusively. The meetings will consist mainly of the good cheer of a nice dinner at or about "early twilight," on or about the thirteenth of each month. Their second meeting, held this month, was enlightened on the subject of "Why Professional Men Should Advertise," by Mr. Wm. C. Freeman and Mr. Harrison D. Miller of the business staff of the New York "Evening Mail." We note one remark, "the business methods of professional men are of the days of the stage coach but commercial men have kept pace with the airship."

The Second District Dental Society held a very interesting meeting Dec. 13, when Dr. Fred A. Peeso of Philadelphia read a paper entitled "Bridgework—Past and Present." Dr. R. B. Reitz of New York, Dr. John Schmidt of Brooklyn, Drs. Ottolengui and Rhein of

New York, were prominent among those discussing the paper. They all agreed in the main with the essayist, all emphasizing the fact that the foundation must be right, the abutments well shaped so crowns shall fit, and devitilization more often performed—and especial care given to the thorough treatment of the root canals. These seemed to be especially strong points.

Yours truly,

THE BOROUGHS.

PRACTICAL HINTS.

Spurs on Removable Retainers:—A retainer will not be effective unless it is held near the occlusal, or cutting edge of the tooth. This is accomplished by the use of spurs. It has been my custom usually to place a spur in between the lingual cusps of the lower molar as I have found that the most convenient position to put it.—*George Northcroft, London, England.*

Convenient Laboratory Appliance:—It is often desirable to have a smooth base on our models and the use of glass plates involves breakage or possibly a cut finger on sharp edges. I have been using a piece of sheet celluloid fastened on the plaster bench. Run the model in impression and invert on the celluloid. It will separate easily and be smooth and clean. Especially useful in orthodontic work.—*Grafton Munroe, Springfield, Ill.*

Centrifugal Force in Casting:—The apparatus consists in a wheel 65 centim in diameter and turning on a ball bearing. In its center on one side a long, square, steel pivot fitting into an iron slot which can be screwed on any table, is fixed. On the other side a wooden handle is attached which allows you to stop the rotation. Between the spokes there are two weights to counterbalance exactly, the weight of the casting cylinders. Attached to the rim is a solid iron hook which carries the frame of the cylinder.

For the investment I have found a composition which does not shrink or crack. It consists in 1 part of plaster mixed with 2 parts of the finest ground river sand.—*William Sachs, Berlin, Germany.*

Dentists Should Cultivate Broad Ideas:—I am always glad when I hear or know of a dentist whose influence in his community and in his state reaches out beyond the confines of treating teeth, replacing them, and things like that, as good as that is, and reaches other fields and other spheres and other phases of influence for better things, and sees them from some other standpoint. I wish that, as a profession, we might grasp our true, our rightful place, as men who in our community ought to take somewhat of a leading place in the right direction and have our influence going out to those about us in such a way that we would stamp our impress upon the community in which we live as men who hated sin and wanted everything right and first things put first.—*T. F. Cooke, Burlington, Iowa.*

Stationary Retainers in Orthodontia:—While not wishing to criticise removable retainers, I can not conceive of successful results for the reason that retention should always be stationary and the balance maintained. The retainer must take on some of the functions of a muscle. In a great many cases of Class I, where there are narrow arches, if it were demanded by the patient that a removable appliance be used, one with a vulcanite plate might in some cases be successful; but if the case was one of Class II, it is difficult to retain, and this also applies to Class III.

With regard to liability to decay under fixed retention, if the retention is properly adapted that liability is nil. I never had decay under a band.—*W. G. Law, Berlin, Germany.*

Centrifugal Casting:—It is amazing to see with what precision the centrifugal power will reproduce the most infinitely small contours of inlays and plates. Where other machines require complicated appliances to produce the necessary contours, the wheel has the power right in itself without the help of anything but nature. Those who are starting upon the new specialty of casting will have to go through the school of experience which all successful men have graduated from. Unavoidable failures will be limited and it will soon be discovered that failures are not due to faulty machinery, but from non-observation of three factors—the proper heating of the investment, the proper melting of the metal, and the establishment of a vent hole With regard to the latter simple reason will suffice for using it; centrifugal force must drive out the air somewhere.—*William Hirschfeld, Paris, France.*

Nervocidin:—The following is practically a specific for aching pulps in deciduous molars: The cavity is cleaned and the pulp exposed if possible, although this is not essential. Owing to the irritating properties of nervocidin, it is necessary to combine it with an analgesic. After using several different drugs in combination with nervocidin, thymol was selected, as possessing not only analgesic but strong antiseptic properties. On a small pledget of moist cotton, take up a quantity of nervocidin, about one-half the size of a pin head, and apply near the pulp exposure if there is one. Flow over this a thick paste of thymol in chloroform and cover with a disk of blotting paper to fit floor of cavity. The best sealing for this case is a loose pledget of cotton soaked with the despised sandarac varnish to fill about one-half the cavity. This is condensed with a wet pledget of cotton. Complete the dressing with a temporary stopping. Allowed to remain from forty-eight to seventy-two hours, the first case is yet to be met with where anesthesia was not complete and the removal of the pulp painless.—*A. D. Kyner, Moweaqua, Ill.*

Treating a Case of Protrusion of the Lower Jaw:—A little girl, fourteen months old, had the habit of throwing the lower jaw forward. The lower jaw did not come into place and the lower teeth came forward. There was no possibility of adjusting an appliance in the mouth and an impression was taken of the chin in Stents, and a cap swaged for the patient to wear. In that way I thought to throw the condyles a little in to allow the teeth to come into place. The bones of the head being soft care was taken. After a week, fearing the child might lie on her side during the night, I took an impression of the head in a salad bowl and swaged a cap of metal to fit over the head, bringing the force all over the head, and lined the cap with velvet. After four weeks I was pleased to see that the teeth came in place.

The condition had been brought about by the girl sucking two fingers, and I had long stockings placed over her arms to prevent the sucking. To assist in regulating I had one stocking taken off and allowed the child, for a few days, to suck, and that brought the upper teeth a little forward and kept the lower as I required them.—*V. de Trey, Basel, Switzerland.*

Balsam of Peru as a Surgical Dressing in Discharging Fistulae of the Alveolar Process:—The purpose of this paragraph is to call attention to the value of Balsam of Peru as a surgical dressing in chronic fistulæ of the alveolar process after proper surgical treatment has been instituted. Balsam of Peru is an excellent disinfectant as well as a most decided stimulant when applied on a small gauze wick along a carious tract in the alveolar border. Indeed as an application for old sores and as a stimulating dressing for sluggish granulations it has few equals. The routine method of using this rather old surgical preparation as practiced by the writer is as follows: If a carious fistula exists on the alveolar border as for instance from an old alveolar abscess, an incision is made under cocaine over the fistulous opening and the entire carious tract thoroughly curetted to remove unhealthy granulations and every particle of carious bone. A small sterile gauze wick is then dipped in the thick Balsam and inserted to the depth of the wound. Daily dressings are then continued until the cavity has healed from the bottom. The tract should be probed occasionally with a small sterile instrument to be sure that there are no offshoots or pockets of caries which will prolong convalescence.—*H. G. Langworthy, M. D., Dubuque, Iowa.*

Pressure Casting:—The service that pressure casting has rendered to prosthetic dentistry is perhaps even greater than that rendered to operative dentistry, and the casting of plates is not one of the least important. We are able to cast plates directly on the model, obtaining the most perfect adaptation. To do this the impression should be taken with a plastic compound, as the model must be made with investing material which does not possess sufficient strength to allow of a plaster impression, especially where there are natural teeth remaining. The wax is adjusted in the usual manner, and after sealing it to the model both are invested in the cylinder and the case proceeded with in the usual way. With this method we obtain a reproduction of the surface of the model with its finest details.

My new way of investing the wax renders all vents of any description superfluous. After covering the wax with a thin layer of fine investment, coarse investment is next applied before the first is entirely hardened. The same procedure is repeated on the other side of the wax and the whole, when hard, invested in the cylinder with coarse investment, which allows the imprisoned air to escape at all points, thus overcoming one serious difficulty heretofore met with in the casting of plates.—*K. M. O. Solbrig, Paris, France.*

OBITUARY.

DR. JOSEPH DONAHEY MOODY.

Died, after three days' illness, of heart failure, at Los Angeles, Cal., Nov. 24th, 1909.

Dr. Joseph Donahey Moody, aged 68 years and 10 days.

Born in Ashland, Ohio, 1841

In 1861 enlisted as a private in Company H, 42d Ohio infantry, Col. James A. Garfield commanding.

Served three years and two months without wounds or serious illness. Was secretary to Col. Garfield till the latter was promoted. Dr. Moody had a treasured letted from Gen. Garfield, written from the battlefield of Shiloh, which has added this postscript: "I am very sorry you are not still my clerk."

Dr. Moody was in detached service in the brigade quartermaster's department for nearly a year, and was then promoted to second lieutenant and assigned to Company I. At beginning of the Vicksburg campaign he was placed in charge of the ambulance corps of the Ninth Division, Gen. Osterhaus commanding.

Returning to his regiment in the spring of 1864, he was appointed first lieutenant, and later adjutant.

Soon after his discharge from the army he began the study of dentistry, as the custom then was in the office of a preceptor. Practiced first in Upper Sandusky, Ohio, later in Mendota, Ill., where he remained for twenty years. Took a course in the Chicago College of Dental Surgery and graduated in March, 1885. Removed to Los Angeles, Cal., in February, 1893, where he was engaged in active practice till within a few days of his decease.

While living in Illinois, Dr. Moody was a valued member of the Illinois State Dental Society, also the Central Illinois and Chicago Societies.

At Mendota he was for several years president of the city Board of Education.

After his removal to California, he soon became identified with the Los Angeles and Southern California Associations, and in due time became president of each. He also engaged in educational work, being for several years and up to the time of his death Professor of Hygiene and Ethics in the College of Dentistry, University of Southern California.

As a dentist Dr. Moody was industrious, painstaking and skillful, in relation with the members of his profession, courteous, kind and ethical in the highest degree. He was one who illustrated in his own life the principles he advocated. He plead with great earnestness that a dentist should be broadly educated, a fully developed, all-round man.

He read widely and thought deeply upon current questions. He was an active member of the Southern California Historical Society, also of the Southern California Academy of Sciences; was much interested in Archaeology, and made one of his chief diversions the field study of botany.

Dr. Moody was a deeply religious man, a very thorough Bible student, a sincere Christian. From the age of 17 to the end of life he was a faithful member of the Presbyterian church—for many years an elder. He was particularly identified with Sunday school work, both in Illinois and California; for several years superintendent of Sunday school normal work for southern California. In the Southern California Dental Association he was often spoken of as "our chaplain," always ready to offer the opening prayer in the absence of a clergyman.

The respect in which Dr. Moody was held by his neighbors, patrons and professional brethren was fully attested by the large attendance at his funeral, which was held in the Hyde Park Presbyterian church of Los Angeles, Friday, November 26th.

His widow, Dr. Kate Cameron Moody, whom he married in Jessup, Iowa, 1860, survives him.

Their only child, a daughter, died at the age of 5 years, in Mendota, Ill., to which place the remains of the father were conveyed for burial.

G. N.

RESOLUTIONS PASSED BY THE ODONTOLOGICAL SOCIETY OF CHICAGO ON THE DEATH OF DR. J. W. WASSALL.

Joseph William Wassall, M. D., D. D. S., was born February 8, 1858, in Blockley, Worcestershire county, England. At the age of sixteen he entered the office of Dr. George O. Howard, of Galena, Ill., and worked for him two years, gaining his first knowledge of dentistry. He entered the dental department of the University of Michigan, at Ann Arbor, in 1876. Dr. Howard assisted him by advancing money to him, which he repaid after the completion of his course. He first practiced for himself in Darlington, Wis., for a short time, and later in Mineral Point. He came to Chicago in 1881 and began his successful career at 103 State street. He was a member of the Illinois State Dental Society, the Odontological Society, the Chicago-Odontographic, the National Dental Association, and the Chicago Medical Society. He was also a member of the Delta Sigma Delta Fraternity.

Dr. Wassall left two children—a girl, Ellen, fifteen years of age, and a boy, Joseph, aged seven.

IN MEMORIAM.

Fellow Members:—It is eminently appropriate that this society should in this formal manner place upon its records the testimony of the living to the worth, virtue and high character of the man who was so recently one of its most prominent, useful and highly respected members.

Joseph W. Wassall, to the honor of whose memory this society this evening pays a sincere and heartfelt tribute, was much more than a distinguished member of the dental profession. He was a man who, in a life a quarter of a century shorter than we all believed his allotted time, deported himself so well as a student, practitioner, teacher and citizen, that I am at a loss to say in which position he did most to gain the high place he so justly holds in the hearts of all who knew him.

It was Dr. Wassall's fortune to live in an age of the greatest achievements in the history of dentistry, and the part performed by him in developing methods in manipulative procedure, and employing them with a high degree of skill, marked him as a leader in the profession. Ambitious to store his mind with knowledge from all sources which would better equip him for greater usefulness in the performance of his life work, after graduating among the best men in his class from the dental department of the University of Michigan, and practicing for several years, he felt the need of further scientific training and accordingly matriculated at the College of Physicians and Surgeons of this city, from which he graduated as a doctor of medicine.

He will be remembered as a progressive practitioner who not only devised, invented and successfully employed valuable methods of procedure, but who was prompt to recognize and adopt every advance step, every improvement in material and its manipulation, and give his patients the benefit thereof.

He took great interest in association work, was active in many societies, and was justly esteemed as a representative member of the profession.

Dr. Wassall was always regarded as a professional gentleman. His position as such was never questioned. Those who knew him gave him their confidence; to confidence they added respect, and to respect love. He was a man of high ideals. His every impulse was noble.

His large and lucrative practice came not by chance, but by the natural outgrowth of faithful service, which had as a groundwork kind and courteous attention, an upright character, a lovable personality, a high sense of honor and rare skill. Ever ready to impart his knowledge to fellow-practitioners and assist them, he filled a warm place in their hearts. He loved his friends with unswerving fidelity. His name and achievements are enrolled in the history of the profession of his time, and he lives in the affections of his brother practitioners and his many patients, whom he served so well.

As a young man he aspired to a position of honor and trust in his profession, and we all know how well he succeeded. He was not of the lower strata, nor of the mediocrity, but stood among the foremost professional men.

In bearing life's burdens and trials, of which he had many, with all the depression and suffering they brought him, his demeanor was most praiseworthy. He reflected credit not only to himself but to his associates.

Fate has forbidden our placing flowers upon his grave. The cold waters of Lake Michigan hold him in their embrace, but his career stands as a splendid monument to able and painstaking professional effort. To his associates in this society and in the ranks of the dental profession generally he was known as a man of sterling integrity, a conscientious worker and a loyal friend. Therefore,

Be it Resolved, That the Chicago Odontological Society adopts the foregoing as a tribute of admiration and respect for its deceased member, that this resolution be spread upon the minutes of the Odontological Society and that a copy of it be sent to the children of Dr. Wassall with an expression of the society's profound regret over their loss, and sincere sympathy in their sorrow.

Truman W. Brophy,
Committee of the Whole.

MEMORANDA.

IOWA STATE DENTAL SOCIETY.

The forty-eighth annual meeting of the Iowa State Dental Society will be held at Des Moines May 3, 4 and 5, 1910. Besides an especially strong program, plans are being made for a large Dental Manufacturers Exhibit. Display space free of charge. W. G. Crandall, secretary, Spencer, Iowa.

THE TEXAS STATE DENTAL ASSOCIATION.

The annual meeting of the Texas State Dental Association will be held at Houston, Texas., May 10th, 1910. On May 11th, 12th and 13th the association will meet conjointly with the Southern Branch of the National Dental Association at the same place. J. G. Fife, secretary, Dallas, Texas.

IOWA STATE BOARD OF DENTAL EXAMINERS.

The Iowa State Board will hold a meeting for the examination of candidates for license to practice dentistry in Iowa beginning January 10, 1910, at 9:00 a. m., in Des Moines.

For blanks and other information write the secretary, E. D. Brower, Le Mars, Iowa.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The South Dakota State Board of Dental Examiners will hold its next regular meeting at Sioux Falls, S. D., January 11th, 1910, at 1:30 p. m., and continue three days. All candidates are required to take both practical and theoretical examination. The fee of Twenty-five Dollars ($25.00), together with application, must positively be in the hands of the secretary not later than January 2d, otherwise the applicant will not be entitled to take the examination. G. W. Collins, D. D. S., Vermilion, S. D.

CELEBRATION IN HONOR OF DR. G. V. BLACK.

The Chicago Odontographic Society have arranged for a great meeting, manufacturers' exhibit, clinic and banquet, to be held on Friday and Saturday, January 28th and 29th, 1910, and a cordial invitation is hereby extended to all ethical practitioners, to be present on these occasions. Exhibitors' Clinic, January 28th, 1910, all day (at the Chicago College of Dental Surgery, corner Wood and Harrison streets. Meeting January 28th, 1910, at 8 p. m., in Handel Hall, 40 East Randolph street. Essayist C. N. Johnson, M. A., L. D. S., D. D. S., subject, "The Selection of Filling Material and Methods of Inserting, When Temporary Work Need Not be Considered." The discussion will be opened by prominent men from all sections of the country. Clinics, Saturday, January 29th, 1910, all day, at the Chicago College of Dental Surgery, by operators of national reputation. Banquet—As a fitting climax to a great meeting, we will all unite in a "Testimonial Banquet" to a great man, whom we all love to honor, Dr. G. V. Black. The banquet will be held in the Gold Room of the Congress Hotel, on Saturday evening, January 29th, 1910, at 7 o'clock. Information regarding meeting or banquet will be furnished by any officer of the society or by addressing the Clinic Committee, H. N. Orr, A. F. James, J. E. Schaefer, C. M. Cahill. Geo. N. West, chairman, 100 State street, Chicago.

THE TRUMAN DINNER.

On the 22d of January, 1910, a complimentary dinner will be given to Dr. James Truman, D. D. S., LL.D., at the Waldorf-Astoria Hotel, New York, by his professional friends, as an expression of their appreciation not only of his personal characteristics and worth, but of his many years of self-sacrificing labor as teacher, author, editor, and investigator, in the advancement of dental science and art.

It is the desire of the Committee having this banquet in charge that all of Dr. Truman's friends throughout the world shall utilize this opportunity to express their appreciation of Dr. Truman either by attending the banquet or by communicating their good wishes and congratulations to him on that occasion. Those who desire to attend the banquet can communicate with Dr. S. G. Perry, treasurer of the Committee, 130 West Fifty-seventh street, New York, and those who cannot attend and who desire to send letters or telegrams to be delivered to Dr. Truman may forward these in care of the Editor of the *Dental Cosmos*, corresponding secretary of the Banquet Committee.

As it is impossible for the Committee to individually reach all those who will wish to take part in this celebration, and as it is desired that none shall fail to receive notice of it, the Committee has decided to give notice in this manner through the various dental journals in the hope of reaching everyone who may in any way desire to participate. Edward C. Kirk, corresponding secretary.

THE G. V. BLACK DENTAL CLUB CLINIC.

The annual clinic of the G. V. Black Dental Club will be held in the Old Capitol building in St. Paul on February 24 and 25, 1910. At this writing there is every indication that this will be the largest attended and most interesting of all the clinics which the members have held. Such well known men as Drs. Black, Johnson, Friesell, Chappel, Barnes and Woodbury will take part in the literary program. Operations will be made by Drs. Searl, James, Gallagher, Carlson, James, Yerke, Crandall, Fawcett, Moyer, Robinson, Clack, Beemer, Richardson, Robinson, Noyes, Black, Woodbury, Finn, Wallace, Moyer, Wedelstaedt and Cooke. There will be operations made with gold and amalgam. Drs. Beemer and Richardson will make and place cast gold inlays. The table clinics will be of unusual interest. Dr. J. B. Ridout will demonstrate on both days of the clinic. Dr. C. P. Peterson will cast aluminum plates on both days. Dr. F. B. Kremer will once more assist the members of the club with some things which will be most worthy of attention. Dr. C. L. Topliff will be present prepared to extract abnormally situated lower third molars. Dr. E. J. Hart of Madison, Wis.; Dr. M. E. Vance, of Lincoln, Neb.; Dr. G. F. Hauser, of LaCrosse, Wis.; Dr. W. W. Wold, of Jackson, Minn.; Dr. G. J. Couvrette, of Grand Forks, N. D.; Dr. B. F. Lockwood, of Yankton, S. D., will hold table demonstrations which will be of value to all. It seems only necessary to announce the fact that Dr. C. N. Johnson will hold a table clinic to arouse the interest of his multitude of friends in what he will display. The number of supply houses which have reserved space is sufficient guarantee that everything which is new and of importance will be on exhibition. The profession generally is invited to attend. For further information apply to R. B. Wilson, secretary, American National Bank building, St. Paul, Minn.

PATENTS.

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

935,295. Vulcanizer, H. D. Bultman, New York, N. Y.
935,480. Barbers' chair, C. W. Fischer, Chicago, Ill.
935,405. Adjustable bracket, W. E. Rhodes, Corry, Pa.
935,416. Adjustable bracket, A. J. Schneider, Newark, N. J.
935,419. Rack for dental and like tools, W. L. Smith, Pittsburg, Pa.
935,420. Rack or tray for dental and like instruments, W. L. Smith, Pittsburg, Pa.
936,131. Dental or surgical chair, G. Holtz, Gouldsboro, Pa.
936,903. Artificial tooth, J. W. Ivory, Philadelphia, Pa.
936,539. Dental apparatus, A. Jameson, Indianapolis, Ind.
936,633. Dental press, F. O. Jaques, Jr., Cranston, R. I.
936,732. Dental instrument, W. H. Manning, Malden, Mass.
936,361. Artificial tooth, F. Rose, Liverpool, England.
937,356. Apparatus for distilling mercury from gold amalgam, W. E. Bennett, London, England.
937,683. Composition for treating teeth, R. Matweff, Tatar-Pazardjik, Bulgaria.
937,343. Head-rest for barbers' chairs, R. S. Wallace, Forney, Texas.
937,126. Rotary dental apparatus, M. Wentworth and W. J. Garbutt, Milwaukee, Wis.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall building, Washington, D. C.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, FEBRUARY, 1910. No. 2

BETTER ORAL HYGIENE BY THE PROFESSION.*

BY N. S. HOFF, D. D. S., ANN ARBOR, MICHIGAN.

One is not compelled to recall the statistics of those earnest members of our profession who are engaged in carrying on the propaganda for public education of the masses in matters of oral sanitation, to realize that in the matter of general oral hygiene our profession has made less progress than in its technical departments, and we might fairly be accused of selfish commercialism rather than of altruistic professionalism. We are proud of the fact that we have discovered the cause of dental caries, and that we know of practicable disinfectants for destroying the micro-organisms of caries, also that we have so perfected our manipulative skill that we may restore impaired dental tissues and organs to practically normal function. There can be no argument as to whether dentistry has or has not made remarkable progress in the past one hundred years—the period of its actual development as an Art and Science; but there is so much that it has not as yet accomplished that we are many times reminded by some one that it has not yet made a beneficent place for itself which should entitle it to be classified as a distinct profession. I am of the opinion, however, that this is an estimate held by a few captious and disgruntled members of the profession rather than by the public or the profession at large. I haven't time here to digress to consider the well discussed proposition that there isn't enough of dentistry to make it a profession unless it can be hitched onto the medical profession as a special practice of the general healing art. The proposition that I want to get before you without too many associated ideas is that of our duty to our patients as practitioners of a calling whose business it is to deal with the problems of health in the oral cavity and its associated organs and tissues, one of which is immediately concerned in the function of preparing food for digestion and assimilation in the alimentary canal, and the other to the prevention of the introduction into the general system of poisons from diseased and unsanitary mouths—the chief gateway for all such admissions. I might elaborate my premise to great length and present arguments to convince you that systemic diseases may, in many cases, be traced directly to the mouth and its associated organs for their first cause; or I might in a similar way bring you much testimony from medical practitioners of good repute to the effect that systemic influences leading to bad health could not be changed until the teeth alone had first been made healthy. As I write these lines a patient has just been referred to me for treatment of his teeth, because his physicians cannot cure him without normal, nourishing food, which is impracticable for him at present, because his teeth are not in a condition that will enable him to properly masticate. This particular patient is literally starving on predigested foods and drugs, and no one but a skillful dentist can rescue him from a premature grave. I believe I can prolong this patient's life many years and make of him a useful citizen. Most people who have saved one person's life, as from drowning, for instance, would claim a Carnegie medal and brag about it as long as they lived. I am confident that the conscientious dentists of Chicago save more lives every year than all the life-saving stations on the Great Lakes do in ten years. And who can number the years of added life, happiness and usefulness to its citizens that can be traced directly to the efforts of the skillful and earnest professional men of this city during the last fifty years? Now I purposely present this thought to you in this way that I may catch your attention and gain your interest in order that I may carry you sympathetically through what may not be a subject to which you have given much special thought, or which some of you have intentionally practiced with as much enthusiasm as you have some other departments of the work which has so much more strongly appealed to you that you have exhausted your time and energies with them, and have left this department, the one that is fundamental, to a few to carry on regardless of your own responsibilities.

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*Read before the Chicago-Odontographic Society, December, 1909.

Although this subject is so large and comprehensive as to touch every department of the practice of dentistry I am hoping I may be able to present it in so practicable and uncomplicated a manner as to interest you and demonstrate to you that it is fundamental and essential to all successful practice of our profession, if it is not the real basis of our professional recognition. In a conversation I had with the late Professor W. D. Miller at the time of the Fourth International Dental Congress in St. Louis, I asked him what he thought was the most important work to be done by the dental profession. He replied immediately, that for him it was to find a means of stopping caries of the teeth that was within the reach of the poor. At the time I did not appreciate the importance of his reply as it had never occurred to me with any force that the poor even cared to have their teeth saved. But his reply to my question has come to have a deeper meaning since I became better acquainted with the history of Dr. Miller's heroic struggle to accomplish this great ideal, and since I now know that it really was this ideal that drove him into his great scientific research as to the cause and latterly the prevention of dental caries, rather than a love for mere scientific research, which with him was only a means to an end. I have had to contend with the temptation to present to you this phase of my subject, which is so important and popular just now, rather than to bring to you out of my experience in endeavoring to put into my own practice—which is not based altogether on philanthropic motives—the ideal of a higher standard of technical and therapeutic services to my patients. I have chosen this latter because I know most of you like myself, have all the work you can do to take care of the health of those who have placed themselves in your care and who look to you to render them the best service in your power, and I am convinced also that the world's workers though few and seemingly of the privileged class need our best grade of professional service. If I bring you no direct aid in this endeavor I entertain the hope that my paper may lead to further thought and discussion which shall be helpful to us all. I shall therefore for this time leave out all discussion of public ministration and confine my efforts to the practicable enforcement of hygienic means of the best kind that can be utilized in preventing the loss of the full function of the teeth in general practices. For convenience in discussion and comprehension I shall divide our patients into three groups with regard to their usual abnormal and pathologic conditions, as follows: First, children and youths from the age of two years to twenty-five; second, adults from the age of twenty-five to fifty; and third, the aged from fifty to eighty and on. This classification is obviously based on the well known facts that during the period from two years to twenty-five we are obliged to carry our patients through their most trying ordeal. It is during this period that the entire developmental career is passed, and unfortunately it is during this period that the seeds of future trouble are planted and innumerable diseases and accidents occur that render the masticating apparatus inefficient, or wholly incompetent, and by the end of the period is often sadly abnormal because of many accidents and repairs. During the second or adult period we perhaps have a more stable condition to contend with, and should the dentures be brought to this period reasonably intact there should not be much occasion for serious interference until the end of the period when the inevitable degenerative processes start to tear down all supporting structures. From forty to fifty the eyes begin to fail and peridental affections begin to become manifest. The third period from fifty to eighty, is the period of more or less active interference for the prevention of diseases of the soft structures and also for prosthetic repairs.

I desire to present to you briefly my own views of what can be done during each of these three periods to prevent the customary afflictions by fortifying the teeth and their environment against the usual sequence of accidents, disease and repair efforts. During a short visit to England this summer I saw more people—who evidently were making no well directed effort to save their teeth from the consequences of disease than you would see in a year of travel in any part of this country. In reply to my comment on this state of affairs, I was told that the people looked upon decay of the teeth as a disease which must run its course, like the measles, and the people believed there was no use to try to prevent it, they could only submit and when the teeth were hopelessly decayed extract them and have artificial dentures. I know you and the people of this city entertain no such ideas, because that noble line of workers and advanced thinkers in our calling who have made Chicago the dental educational center of the world have always taught a better way, and you have developed the practice of conservative dentistry to its present pinnacle of perfection, perhaps more than in any other locality in the world, and the better class of people in this city try to prevent the loss of their teeth.

I do not therefore come here to criticise or find fault with your ideals which I am convinced are of the highest. I simply want to take you in review of the field of work as I see it at its best after an experience of thirty-five years, and with what seems to me some new ideas of the direction which our future work should take. During the past five years I have given much of my time and thought to the study and practice of orthodontia and oral prophylaxis, and this experience has opened to me new views of opportunity and responsibility which I had not heretofore fully realized and which it seems to me the general profession of today does not comprehend as seriously as it should. The results of concentrated efforts to in some measure get a comprehensive mastery of the technical features of the practice of these two departments of my practice have almost driven me to the conclusion that we are today emphasizing the repair department of dentistry at the expense of the more important and fundamental preventive endeavors.

We have developed the technical achievement so far that there is no tooth having a reasonable amount of original hard structure and with no extraordinary pathologic conditions of its root environment that may not be restored to good health and function. I think you will all agree with me that this is a reasonable statement. Some dentists have said to me that they absolutely had no use now for the forceps and some have become so enthusiastic at times in regard to their success in the treatment of pyorrhoea alveoris as to make the statement that this disease is as easily curable as alveolar abscess or any other dental disease. And so I trust that you can all agree with my statement that we are technically masters in the treatment of the usual accidents and pathologic conditions occurring during the three periods in the life of the teeth to which I have above referred. I shall not therefore excite a controversy should I propose the suggestion that it is possible to do better and prevent much of the occasion we now have for restoring damaged or lost dental organs by preventing the diseases which make such treatments necessary and so prove ourselves to be professional men. I believe this is not only possible but practicable; and if you will be patient I will give you my ideas of the prophylactic treatment which it seems to me will prove the practicability of this ideal and indicate some detail of methods that may serve as a basis of decision.

First of all I want you to know that I am bringing to you no specific, nor shall I dogmatize as to individual methods. I only wish I could do this, but it seems the natural process to first get a conception of a purpose and then by a unified effort let each strive in his own way to reach the goal. If I can help to formulate the ideal by reciting my own personal experience and giving expression to my own beliefs I shall be glad to bear any criticism on my methods of promulgating the ideal. To give you in concrete and practical form my ideas of Oral Hygiene I will first briefly review what I consider a proper and practical treatment of the first, and as I consider it the most important period in the life of the patients. Some one has said that a dentist's work should start with the mother before the birth of the child; but as there are obvious objections to such a course, I prefer to start with the eruption of the first teeth. My idea is that the child's teeth should be kept under practically constant surveillance by the dentist from that day to the age of maturity and as long thereafter as may be practical or desirable.

The first objection that I note is that we don't own and can't have absolute or even desirable and constant control of patients, and that life is too short and some of us are already too old to undertake the care of a practice on such an uncertain basis. To this I reply that we have carried the American people up through many years of patient training to a place where thousands of dentists have the absolute confidence of their patients, and we have established sufficient terms of mutual interest and confidence to insure an affirmative answer to a part of this objection. Should any of you think we have reached the end of our striving in the education of our patients you will have to revise your thinking. In my own experience I have found that when I have reached a decision as to a method of practice my patients graciously accept my conclusions and do their part willingly. It may not be true that I shall live and practice dentistry for twenty-five years more, but when I get ready to quite my work I can see to it that some one is ready to take it up and carry on the work for the good of those who have entrusted their health in this particular to me, and I haven't the least doubt that any of us could lay down our work in a reasonably short period of time and have some one ready to take it up and carry it on as we desire with the cordial coöperation of our patients, if the matter is done with a distinct understanding of what was to be accomplished. Therefore it seems to me it is practicable for us to plan our work for a long period to assure desirable results for our patients. I would begin to care for the teeth and the child's mouth as soon as any interference was indicated. The study of the orthodontic art has brought with it a deeper study of some of the underlying principles of practice and we have added much to our knowledge of the causes of malocclusions of the teeth and other associated abnormal conditions. One of the newer facts made known to us is that the first or deciduous set of teeth are often in malocclusion and the jaws and facial bones are undeveloped or malformed, and that this occurs at the earliest stage of development. Here is a place of beginning that the large majority of dentists do not even know anything about and consequently give it no attention whatever. Volumes almost have been written as to advice to be given to pregnant women, but here is a much more important matter that is and has been almost wholly neglected. Modern orthodontists are coming rapidly to the conclusion that to secure perfect development of the jaws and normal alignment and occlusion of the teeth the bones of the face must develop to normal size and articulation, and they are calling the attention of the medical profession to this fact not alone for the bearing on the teeth but upon the nose, throat and lungs in particular. They are insisting on the eradication of all diseases that afflict children in the facial region such as catarrh, tonsilitis, adenoma, etc. And it should be the function of the dentist to compel medical attention early to these diseases to make possible normal development and eruption of the deciduous teeth. As soon as these organs emerge from the gums they should become the especial objects of attention from the dentists. Periodic inspection and prophylaxis treatments are required to keep the teeth free from extraneous deposits and to stop the first evidence of caries, by the application of suitable disinfection or filling when necessary. The disinfection may be accomplished by cleansing and polishing all accessible surfaces; all fissures should be treated with silver nitrate, or disinfected with mercuric chloride and filled with cement; all carious cavities should be filled as soon as they appear, preferably with silicious cements or amalgam, any malocclusion that can be corrected at this age should be given prompt attention. And from the very start each child should be taught the habit of a practicable personal mouth toilet. If such a regime were religiously carried out up to the age of the natural loss of the deciduous teeth and their substitution by the permanent set, ample opportunity and reason for the emergence of the permmanent teeth in normal position as well as form would be insured. The same practice with the necessary modifications to secure more permanent results would insure the development of the permanent set of teeth in a good state of health and normal occlusion and make practicable personal toilet practice as well as oral prophylaxis. Orthodontic interference when indicated helps to minimize opportunity for the development of caries or peridentitis, the two great dental diseases. My idea of oral prophylaxis is the periodic removal of all deposits from the inaccessible surfaces of the teeth by the use of suitable instruments and abrasives properly applied by the dentist, and a rigid toilet regime faithfully applied by the patient, supplemented by such immediate repairs as may become necessary to keep the teeth intact in form and occlusion. There is no question in my mind as to the practicability of carrying any healthy baby to full maturity without the loss of a single permanent tooth and with every tooth in full occlusion, with little or no destruction by caries, and the peridental tissue in perfect health. If this can be accomplished who can estimate its value in fortifying not only the teeth and associated tissues, but the entire body against the encroachment of all diseases, because of the patient's ability to perform mastication completely all through the developmental period? A most important and valuable result of such careful treatment will unquestionably be the impression made upon the patient's mind as to the value of his teeth and their function, his coöperation should result in a disposition and habit of always giving the teeth prophylactic and professional attention. This accomplished the future health and integrity of the teeth during the secondary period would be assured and it should carry them far into the third period before any serious losses occur.

The second or adult period, while possibly it may not require so strict an oversight by the dentist, is one in which the teeth are liable to be neglected by men who become so absorbed in business affairs that they neglect their teeth as well as their bodies as long as they are not forced to give them attention, and by women whose family cares and liability to frequent attacks of prolonged illness lead them to neglect themselves for others and so provide more favorable conditions for the development of carious conditions. It's a period of great stress, accidents and sickness are to be expected and provision should be made to avoid them when possible. A constant regime of prophylaxis, inspection and repair by the dentist with careful attention to the mouth toilet and proper use of the teeth ought to carry a properly trained patient through this period without serious impairment in function of the teeth. This care should be more strictly applied at times of sickness or periods of unusual stress from any cause which would be likely to lower the vital forces and thus vitiate the oral secretions so that they lose their sterilizing influences. In this period we are hopeful that the work of Mr. Horace Fletcher in his propaganda of good health from adequate mastication of food, and the work now being done to clear up the influence which the saliva through its chemical characteristics has in restraining caries of the teeth should be important factors in saving the teeth from these particularly destructive influences. It is during the latter part of this period that the stress of business and other cares begin to tell on the physical well-being. The eyes begin to fail, diseases of the nervous system and the vital organs as well as the beginning of failure on the part of the organs which have to do with the elimination of the waste material of the body to perform their full function, that our patient begins to grow old. The blood does not contain the usual life forces and nervous disorders, gout, rheumatism, etc., assert themselves. The soft tissues about the roots of the teeth become inflamed and destructive disease follows from deposits of calculus on the teeth and degenerative reaction which shows itself in impaired blood circulation. I haven't time or space to discuss here the question as to whether diseases of the peridental structures are of systemic or local origin, but we all know that chronic diseases of these structures are generally associated with diseases of the general system and particularly with those which have to do with faulty metabolism, and that these conditions always retard attempts to cure peridental diseases by local treatment only. There are so many possibilities and contingencies involved in this question that it can't be discussed here satisfactorily, but I mention this to call attention to the fact that more or less modification in our methods of hygienic treatment will have to be made during this period particularly toward the end of it. In my experience I find that where I can control my patients that there should be no occasion for the loss of the teeth either from caries or peridental disease during this period if proper and particular effort by the dentist is made. The absolute cleanliness of the mouth and teeth will prevent all destructive diseases, and while this may not be possible in all cases it is perfectly practicable to attain a near approximation to absolute cleanliness and get in the great majority of cases through this hygienic treatment far better results than without it.

Objections have been raised to such statements because of the fact that the mouth cannot by any practicable method be thoroughly sterilized and if it could be it would not remain so for an hour. This may be quite true, but, no mouth that is kept under even a moderate degree of sanitation by proper oral prophylaxis methods for a reasonably short period will afford opportunity for the development of offensive plaques of micro-organisms which would cause extensive caries of the teeth, and neither would the glutenoid or calcic accumulations on the necks of the teeth be likely to infect and inflame the peridental structures under proper care by the patient. Careful and periodic polishing of the surfaces of the teeth by the dentist and gum massaging by the patient will prevent rapid spreading of such diseases. Now some one will ask how I know that such results are possible as my experience has not covered the range of even one such period. Historically of course I have no claim, but my success in the treatment of these cases in all these stages has given me an assurance of the practicability of the result, and so my faith is firmly grounded and my enthusiasm for the ideal prompts me to proclaim it. I am confident that could I have the opportunity, I could carry a very large proportion of controllable patients through the first and second period of life without the loss of a single tooth, barring accidents, and it seems to me that any other ideal is scarcely worthy of a professional man at this day. It appears to me also as the most worthy ideal I have ever entertained and I invite you to join the ranks of life-savers and see if you don't catch the fire and spirit of all who have taken the time and made the effort to master the technical features which are so well known as to need no restatement here.

In the third stage we enter into the period where naturally and usually the operative and prosthetic procedures ought to engage more of our time and attention, this is now the repair age. That is to say we do find that most people who have or do lose a part or all of their teeth during the first portion of this period. We are accustomed to cordially congratulate the man of sixty years because he has not lost any of his teeth, and one of seventy-five who presents a normal complement of teeth with healthy gums we consider a phenomenon. Is not this state of affairs largely due to the fact that we have spent so much of our efforts so far in the repair work of our calling that preventive endeavors have been crowded out? It may be expecting too much to assume that we should have developed to our full capacity as dental hygienists in so brief a period as our profession has gone through in its building. We really have not had a chance to take full and proper care of any one person's teeth for seventy-five or eighty years, we are new still; but, it seems to me that it is high time that we should awaken to the fact that our business is to save the teeth of our patients intact for their entire lives, and there should be not even at the end of life occasion for us to resort to the prosthodontic art as a rule as now seems to be the case. We believe that if our English confreres should find out that dental caries was a preventable disease and that no one need ever be obliged to resort to artificial substitutes, there would be such a demand for dentists in England very shortly that all the dental colleges in the world could not supply it. In this country we have satisfactorily demonstrated by our great skill in filling teeth and in supplying crowns to carious ones that it is possible to save the crowns of teeth to extreme old age, but we are met with that dreadfully destructive disease which by attacking the root environment in old age very soon undermines all our operative and prosthetic endeavors, and we in our lack of ability to contend successfully with peridental diseases of various causes and characteristics are willing to say, as our English cousins, that it is an incurable disease and must run its course to utter destruction, as it can't be cured, and we must expect to resort to artificial dentures at last. There was never a more fallacious conception, nor one, that because of its lack of that courageous spirit which has in all times surmounted all obstacles, and one that will do so much to prevent the highest development of our calling to its nobler ideals and attainments.

Peridentitis is a preventible disease and in its numerous manifestations or stages it is curable. If it is not we are far from attaining that place in public esteem that should guarantee our professional rank.

Now I am aware that I cannot prove this assertion to the satisfaction of every practitioner nor to every student of the etiology and pathology of this class of diseases; because I should be compelled to rehearse all the historic arguments as to the nature and even the names given to this class of diseases. I can only come back to the statement I have already made and state that I have personally cured to my own satisfaction this class of diseases in all stages and have prevented it in numerous cases where by all rules of heredity and tradition it should obtain. And all this by the application of the principles of aseptic and preventive hygiene. I wish it to be understood here that the application of these principles are to be in no sense considered as a simple procedure requiring no skill or adequate conception of conditions to be met. There is no specific for this class of diseases, each one requires an individual diagnosis and treatment, and the treatment may be complex in the extreme and require the utmost patience and great courage to successfully complete, nevertheless I believe cures are practicable and we should not shrink from undertaking them because they are difficult or seemingly impracticable.

Good professional men have said to me that the only cure for the so-called alveolar pyorrhea was the forceps; and many have given its treatment up entirely because they have no skill or patience to put into practice general systemic treatment in connection with the local surgical treatment, which they believe to be essential for any considerable measure of success. Again, I must decline at this time to review the various theories as to the nature of this disease with its pathology and its local and systemic therapy. My contention is that such diseases are preventable and curable by intelligent dental practitioners and that the underlying principles of treatment are based on oral prophylaxis for all ages, together with proper sanitary habits on the part of the individual. It would take more time than you would permit me to give a comprehensive outline of the various treatments advocated for this class of diseases, or to outline one of my own if I had one. We must treat conditions as we find them. Perhaps the first effective treatment was that advocated by Dr. John M. Riggs, of Hartford, Conn. His method was purely surgical, and as he knew nothing of the value and importance of antisepsis, he secured only partial results. He was followed by such men as: Allport with improved instruments, and W. J. Younger with his surgical curettement and replantation methods, then Dr. Atkinson with his sulphuric acid treatment of necrosis of the alveolar process, Robinson with his detergent remedy—several modifications of which are still being commerically exploited, and so on down the line through the X-Ray, Leucodescent light, Opsonic Treatment, etc., to the treatment based on the practice of Oral Prophylaxis as advocated by Dr. D. D. Smith, the sulpho carbolate of zinc treatment of Dr. Whitslar, and the ammonium bifluorid treatment of Dr. Head. Most of us have tried out some and possibly all of these treatments to find that no one of them brings to us a specific remedy in every case. We have learned from the study and practice of these remedies in combination or by intelligent selection that it is practicable to cure a very large percentage of the peridental diseases in our practices, and to prevent their rapid development in practically all cases where thorough trial can be made. We have also learned that it is possible to rescue by proper treatment teeth that are in imminent danger of being lost; and that these teeth can, by practicable prosthesis, be restored completely to normal function; and where some teeth have been lost we experience little difficulty in making complete and satisfactory restoration by some acceptable form of bridge work. We sometimes find it even expedient to accomplish some orthodontic interference even in old age for the best hygienic results. The conclusion we wish to reach is that peridental diseases even in the aged are not a necessary complement of old age, although this seems to be the case too often, and that they are as amenable to treatment as alveolar abscesses and dental caries, by the complete installation of systematic oral prophylaxis at an early period in the child's history and the carrying this forward and onward through the adult and old age period.

Our work so far seems to have been that of rescuing badly diseased teeth and gums in aged people, when it is altogether probable that we could have so fortified our patients by early treatment against these strong disease influences of the gums and peridental structures had we known how or been able to fully grasp the pathologic significance and had the knowledge and courage to undertake a proper treatment. In other words with our present knowledge we should save all our patient's teeth as long as he lives, a task that is well within the possibility of modern dental surgery. To some who have not as yet caught up with the great advance of modern dentistry this outlook may seem the vision of the enthusiast. We need not wait another century for proofs, as demonstrations of the complete restoration to healthy conditions in all stages, and actual prevention of developing peridental diseases have been so conclusively shown that those who are studying this matter closely today can see clearly that the future dentistry will be preventive in character in the better class of practice rather than reparative. We wish to leave this matter in as practical a form for discussion as possible and submit the following statement for your consideration.

Oral hygiene should consist in the preservation of the teeth and their environment in a condition of perfect health from the time of their complete development to the end of life; and at the present time this seems practicable through the means of oral prophylaxis methods, faithfully and diligently applied by the dentist, reinforced by a prescribed individual mouth toilet by the patient. Do you believe this to be a reasonable statement, and are you making any well-directed effort to carry it out in your practice? For myself I want to say that not a single patient comes to my chair who does not need prophylaxis treatment, and unwillingly I have been forced to spend much of my time in this form of treatment, because I find that it requires my best endeavors and it is such exacting work that it can not be satisfactorily delegated to an assistant and render the patient the highest benefits.

I don't want to make any ones life work a burden and so hesitate to press this matter as I feel it should be done, because I have found this the most exhausting work, physically, I have ever undertaken, and you will find it so, too, if you practice it faithfully; nevertheless it is absolutely necessary if we are to make any important advance on our present professional rank or accomplish the best results for our patients. There are some compensations to cheer us on. You will be more pleased with the results obtained than in almost any other branch of practical work; your patients will be so appreciative of its benefits that they gladly acknowledge your skill. and more willing compensate this than any other service, and one has a conscious feeling that he has not only pleased his patient and earned his fee, but that he has contributed in no small measure to the general welfare and betterment of mankind and made life more happy and useful, thus fortifying our claim to the rank as well as the title of a beneficent profession.

PRESIDENT'S ADDRESS.*

BY TRUMAN W. BROPHY, M. D., D. D. S., LL. D., CHICAGO, ILL.

Twenty-six years ago the 20th of the present month, the following named gentlemen assembled, at the request of Dr. A. W. Harlan, in his office at 70 Dearborn street: Drs. George H. Cushing, Edgar D. Swain, A. W. Harlan, J. W. Wassall, Edmund Noyes, Garrett Newkirk, P. J. Kester, W. V. B. Ames, F. H. Gardiner and T. W. Brophy.

The object of the meeting was to organize a new society whose members would engage in original work. Dr. Harlan believed that the men assembled would be able to engage in certain lines of work and bring results that would be of great value to the profession and to the people. After a general discussion on the subject as to the propriety of creating a new society, it was unanimously decided to organize under the name, The Odontological Society of Chicago. During the period of the existence of this society it has sustained a great loss in the death of four of its members, Drs. Cushing, Swain, Harlan and Wassall. Four have resigned, so the society has at present only two of its original members, Dr. W. V. B. Ames and myself. Additions have been made to take the place of the vacancies that have been created by death and resignation, and we now find ourselves with a membership of twelve. The success of this society has been, in no small measure, due to the cordial relations, the good-fellowship of its members, all of whom cheerfully and enthusiastically perform every duty assigned them.

I believe it would be a great mistake to largely increase our membership. The close fellowship, as in a family, the table conversation in which all join, and which every member so much enjoys, communion with one another on the topics of the day, on professional matters and otherwise, has been not only a pleasure, but it has broadened our knowledge and benefited us far more than we realize. Such intimate relationship with a large membership would be impossible.

During the twenty-six years of the history of this society many valuable contributions to the literature of the profession have been made by its members. The most noteworthy product was the monograph on the "Treatment of Pulpless Teeth." This monograph was distributed throughout the world and was translated and published in all the languages. It is only just, to state in this connection that the monograph was the product of the combined efforts of the society but to Dr. J. W. Wassall more than to any other member, we are indebted for the completion of the work.

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*Read before the Odontological Society of Chicago, November 2, 1909.

During the past year important papers were presented by Drs. Wassall, Reid, Ames and Hinkins, and an invited guest, Dr. J. A. Bullard. We have occasion to congratulate ourselves on the achievements of the year. The work that we have done demonstrates quite fully the value of the small membership and the benefits that come from intimate relations with one another.

It becomes my duty as your president to present to you this, my annual address. I have by reason of a statement made in the Bulletin of the Department of Health of the city of Chicago by Dr. W. A. Evans, commissioner, been lead to call your attention to a very important matter, not new, but which has not only to do with the present, but with the future of the children of our public schools. In this bulletin we find a laboratory report on "Food Inspection," "Sanitary Inspection of Markets," "Sanitary Inspection of Milk Depots and Stores," "A Summary of Insanitary Premises," "Bovine Tuberculin Test," "A Bureau of Contagious Diseases," "Medical Inspection of Schools and Examination of School Children for Contagious Diseases." The number of children examined was 260,531 during the first nine months of 1909. The examination for physical defects was 76,675 following which there is a statement giving the number found defective, 39,931 which gives a per cent defective of 52. The principal defects were found, teeth 28,151, hypertrophied tonsils 18,029, vision 14,409, enlarged glands 11,838, and other conditions less numerous.

The figures that we have in the report of the commissioner, no doubt, have been made with as much care as it would be possible for them to exercise under the circumstances. I believe and am satisfied that the members of the dental profession with mature judgment who have given the matter thought would not hesitate to say that a very grave error has been made by the examiner who placed the number of defective teeth at a little over one-third of the whole number examined.

In my address delivered at Madrid, Spain, 1903, as president of the Commission of Education of the International Dental Federation, among the statistics given covering all countries, on the subject, appears a table of facts regarding the condition of the Teutonic race in Northern Germany. The school children of nineteen towns were examined. The number examined was 9,725. Ninety-five per cent showed dental caries; 372 showed anomalies of various character, including harelip, cleft palate, irregularities of teeth, V-shaped jaws, etc.

The carefully compiled German statistics fairly represent the conditions I found in other countries. It is apparent to us that 95 per cent of the people everywhere are suffering from diseases of the teeth. I believe that the people of America are subject to dental diseases quite as generally as the people of Germany.

We find statistics from Spain and certain cities in England, Manchester, for example, in which the same general condition exists. About 95 per cent of the people are subject to dental diseases and there is probably 5 per cent of the people in America, as elsewhere, who are exempt from dental caries.

In my visits abroad I have been very much impressed with the advancement along the line of general sanitation, as well as in the teaching of prophylaxis and the laws of hygiene in the large schools in which pupils are assembled. In the city of Strassburg, where I spent some time a few years ago, a well equipped infirmary with five thoroughly educated dentists were devoting their time to the care and treatment of school children suffering from dental diseases. This infirmary is equipped and maintained by the municipality of Strassburg. The law or city ordinance makes it obligatory upon families sending children to school to subject each child to a careful examination upon the part of the dentist who is in charge of the dental hospital. The family dentist may examine the child and issue a permit informing the teacher as to the condition of the child's teeth. In the event of any treatment being necessary to put them in good order, this can be arranged by the family dentist, provided the parents are in circumstances to compensate him properly for his services. If the parents are not financially able to discharge the obligation the child is placed in the municipal infirmary and receives the care it requires at the expense of the city. It is not expected that any child shall be placed in the infirmary whose parents are able to pay for the services of a dentist.

The German government in pursuing this course, keeps the children in good physical condition. I might state in passing that every child must bring a health certificate as our children bring certificates of vaccination. Every child attending school is required to bring a certificate of health from the family physician and dentist who must certify that the child is in good physical condition. If he has physical defects he will be cared for by the family physician or sent to a hospital or dispensary to receive the treatment which it requires. If the child's parents are unable to employ professional men, it is examined by the attending staff, including aurists, pathologists, dentists, etc. The achievement of the work of the department of hygiene of the International Dental Federation has attracted the attention of the world.

At Stockholm, Sweden, August, 1902, resolutions were adopted by the International Dental Federation, recommending the appointment of dental surgeons in the armies of the various countries of the world. These resolutions were conveyed to the secretaries of war and as a result several nations, after consideration, have appointed dental surgeons in their armies. The service of dental surgeons in the armies has greatly improved the physical condition and efficiency of the men.

The mouth is the greatest of all centers of infection, therefore extreme care should be exercised in preventing the multiplication of oral pathogenic micro-organisms, thus checking the invasion of systemic diseases.

To the members of the dental profession abroad, Germany, Sweden, France, Austria, England, Italy and Spain, much credit is due for the great progress that has been made in oral hygiene in the past few years. As a consequence there has been a marked improvement in the physical condition of their people. Diseases of the teeth are found to be more prevalent than any other diseases known to mankind. Many diseases which have originated from diseased teeth are too frequently passed by and therefore do not receive the attention that their importance requires. As a result of this failure in oral prophylaxis we find patients suffering from sensitive dentin, pulpitis, pericementitis, maxillary ostitis and necrosis, dento-alveolar abscess and many of the numerous pathological conditions which may manifest themselves in the form of neuralgia, empyema of the antrum, defects of vision, hearing, tempero-maxillary arthritis, caries and necrosis of bones, etc.

The foregoining reference to the conditions, abroad and the statement made by the office of the superintendent of health, has impressed me that the Chicago Odontological Society seems to be the organization eminently fitted to bring about an improvement in the condition in our own public schools in the city of Chicago.

I have previously stated that 33 1/3 per cent is not a correct report on the dental diseases of children of the schools of this city. I believe that in the interest of the children, that they may be properly cared for, this society should make the work of bringing about improvement and establishing infirmaries for the care of children whose parents are unable to employ a practitioner, its duty. To do this it is necessary to have the coöperation of people who are disposed to contribute to charity and eventually get an appropriation from the city of Chicago to provide suitable rooms in or near each school building, and equip them with the facilities for performing dental operations which are necessary to prevent further suffering.

Lectures on "The Care of the Mouth" in Chicago. have been given under the auspices of the Chicago Medical Society. For three years lectures have been given in the public schools in the city of New York on the care of the teeth, under the supervision of the board of education. Dental service is given the children of the needy poor at Milton, Pa., and the town pays the expenses. Cleveland, Ohio, paid for the care of the teeth of 1,500 school children last year, the dental service being given free. In Rochester, N. Y., the dental society maintains a free dental hospital and conducts a free clinic under the auspices of the public health association.

I think with the coöperation of the commissioner of health and the selection of well equipped young men to conduct the work, we will be able to accomplish a great deal for those who are not able or have not sufficient understanding concerning the care of the mouth. As Dr. Evans has taken so much interest in general sanitation and so deep an interest in our school children, I think we may rely on him to assist in this department of public health. I feel quite certain he will do all he can to further the work we desire to accomplish for the little ones who so much require dental services.

The question of how to care for them and where, is a very important one. I have sometimes thought the dental schools could perform all the operations necessary, but lately I have been brought to the belief that the best results could be obtained by employing recent graduates.

I have attempted, in this communication, to point out the way by which thousands of children of our city may be made comfortable and free from the extreme pain to which their teeth often subject them.

In conclusion I recommend that a committee of the whole be created whose duty shall be, with the approval and assistance of Mayor Busse, Health Commissioner Evans, and Superintendent of Schools Mrs. Young, to devise ways and means to examine the teeth of the children of the schools of Chicago and provide them with skilled dental services.

A NEW AND SUCCESSFUL TREATMENT FOR CHRONIC ALVEOLAR ABSCESSES AND SINUSES OF THE JAWS.*

BY RUDOLPH BECK, D. D. S., CHICAGO, ILLINOIS.

In bringing this subject before this society I shall omit all reference to etiology and pathology, nor shall I review our present method of treating chronic alveolar abscesses or suppurative sinuses, but shall describe a simple method of treatment which I am convinced is a practical advance over the methods now in vogue. We are all familiar with the difficulty in treating old suppurative sinuses of the jaws, especially where the focus of the suppuration is remote and cannot be eradicated with any simple surgical operation. I, therefore, anticipate that this new, simple and successful treatment for these resistant affections will be welcome. Shortly after my brother, Dr. Emil G. Beck, presented to the medical profession his new process of treating tubercular sinuses and abscess cavities by means of the bismuth paste, I began to employ this method in chronic alveolar abscesses, suppurative sinuses and cavities of the jaws and, after nearly two years experience, so convinced am I of its merits that I desire to describe the method to you.

This new process of treatment consists of injecting a paste made up of 33 parts of bismuth-subnitrate and 67 parts of sterile yellow vaseline which, when injected in a liquefied state into old suppurative sinuses or cavities, will produce general cessation of discharge and complete closure, providing all ramifications of the sinuses have been thoroughly filled with the paste and no foreign body, such as a sequestrum, etc., is present.

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*Read before the Northern Illinois Dental Society at Elgin, Oct. 1909.

The fact has now been verified in general surgery in hundreds of cases by competent observers all over the world. An average of 50 per cent complete cures of the most extensive and resistent cases having been reported.

There is no valid reason why in dental surgery the same results should not be obtained, since the pathology is practically the same and conditions even more favorable. The investigation of this subject was, therefore, inviting and my results so gratifying that I anticipate arousing the same interest in our profession as has been the case in the medical profession. I will endeavor to give you, in detail, the technic I employ in the treatment of—

First, a chronic alveolar abscess, with a fistulous tract. Having satisfied myself that the roots of the tooth are properly filled, proceed with a blunt-pointed, flexible probe to follow the course of the tract, if possible, to the opening in the alveolar plate, leading to the affected tooth. Should the opening be too small, I employ a sharp round burr—about the size of No. 8 S. S. White—on my dental engine and enlarge the same. After the control of the bleeding, I introduce the point of either a glass or metal syringe, holding about one-half ounce of the paste, and by gentle and steady pressure, force the paste throughout the entire distribution of the fistulous tract. It may require subsequent injections, but one is generally sufficient. If the fistulous tract, after a reasonable number of injections, refuses to heal I proceed to look for the cause which may be either a foreign body, necrosis or a sequestrum present, and after its removal and reinjection of the paste, the desired effect may be expected. I would recommend that when possible obtain an X-Ray radiograph and thus definitely ascertain the absence or presence of foreign bodies.

The next group of diseases are in the non-collapsible cavities, lined with mucous membrane.

THE MAXILLARY SINUSES, OR ANTRUM OF HYMORE.

I will consider only those that are of dental origin, or rather the suppuration being the result of some affected tooth communicating with the antrum. Having determined that from a certain apex of a tooth, the pus discharges into the sinus and that the tooth can be retained, I make an opening into the pulp chamber and allow the pus to escape. Should the opening at the apex of the root be too small, I enlarge the same by means of a good-sized drill, sufficiently large to allow the paste to freely pass through and beyond the apex of the root into the antrum until the entire cavity becomes filled and the paste begins to escape through the natural opening (the middle meatus) into the nose. In case the extraction of the tooth is necessary, the injection is made through the opening thus produced, but the end of the tip of the syringe should be somewhat larger in circumference than the external opening to prevent the paste from escaping along the side of the syringe tip. When neither the tooth is removed nor the apical opening possible or advisable, an opening in the region of the canine fossa is made into the antrum. No attempt should be made to wash out the pus. The slow filling up of the cavity displaces the pus through the natural opening into the nose. The entire cavity must be completely filled with the paste. In some cases more than one injection is necessary. The pathologic condition and symptoms present must guide us to a great extent; a return to normal condition cannot be expected in consequence of the long-continued degeneration of the mucous membrane lining the cavity or partial destruction of the underlying bony tissues. After the pus discharge ceases and healthy granulations form, the case may be pronounced cured. Another class of cases where the injection of the bismuth paste produced satisfactory results are the cavities of the jaws, resulting from traumatism, syphilis, tuberculosis, dermoid cysts, and phosphorous necrosis.

These cavities should be filled with the paste. If repeated injections fail to produce the obliteration of the cavity, surgical procedures should be employed. But instead of packing the resulting cavity after the operation with gauze, the paste is recommended. In case the bleeding is profuse, the cavity may be packed temporarily with gauze strips, same to be removed after twenty-four hours and then the cavity filled with paste.

To prevent the escape of the paste during the process of mastication or to prevent the admission of particles of food into the paste-filled cavity, a hard paraffin covering will be found convenient. Here the paste acts not only as a bactericidal agent; but also as a dressing far superior to others, and produces the rapid formation of healthy granulations.

The question has arisen—what becomes of the paste after it is injected into these cavities? Laboratory and clinical tests have proven that shortly after the paste has been injected into a suppurative sinus and it has come in contact with the diseased tissues, the secretions will soon change their character, from a purulent to a seropurulent and still later become serous. This change is a favorable sign. It indicates that the secretion has become sterile. This fact has been proven in many cases by systematic examination of these secretions, which show a gradual diminution and final disappearance of all micro-organisms. Some of the paste will escape through the sinus opening within a day or two. That which is retained will be slowly absorbed. This fact has also been amply demonstrated by tracing with radiographs and by experiments on animals. When large quantities of the paste are injected in one case, symptoms of acute intoxication may arise, similar to the metallic poisoning such as lead, mercury, etc., with manifestations of ulcers of the buccal mucous membrane resembling blueberry stains, a blue border of the gums and around the necks of the teeth. The teeth become loose and may finally fall out. Systemic symptoms, such as diarrhoea, acute catarrhal nephritis, loss of weight accompany severe cases.

But in view of the fact that in dentistry only small quantities are employed, seldom more than one ounce at a time, this danger is practically eliminated.

I wish to call special attention to the advantage of employing the bismuth paste for diagnostic purposes. Here it is of inestimable value. The well-known fact that bismuth offers great resistance to the penetration of the X-Ray makes it a suitable material for radiographic work. A radiograph taken after the sinus has been injected clearly shows the boundaries of the fistulous tract and cavities tracing distinctly the ramifications of the same no matter how extensive and tortuous they may be.

Stereoscopic radiographs are of still greater value inasmuch as they show the depth and relation of the sinus to the other structures.

My experience, since I have employed this method of treatment in the different conditions described, has been very satisfactory and only in such cases where I did not carry out the technic correctly have I had failures, and when this was corrected a cure was usually effected.

CONCLUSIONS.

1. Chronic alveolar abscesses, with or without fistulous openings, sinuses and abscesses of the jaws, can be cured by the injection of a 33 per cent bismuth-vaselin paste, providing every part of the sinus or cavity has been reached and no foreign bodies are present. (Tubercular sinuses are no exception.)
2. The same paste injected into pyorrhea pockets, after all obstructions and deposits are removed, is a remedy far superior to any thus far employed.
3. Radiographs of regions injected with bismuth paste will show all ramifications of the sinuses or abscess cavities and trace them to the focus of their origin.
4. Bismuth subnitrate is a bactericidal substance which is slowly absorbed and slowly eliminated (Kocher).
5. Injections up to 100 grams of the 33 per cent paste, produce no toxic effect. In large doses may bring about symptoms of intoxication, both local and general.
6. Before resorting to any risky operation, the paste should be tried for a reasonable length of time even in resistant cases.
7. The paste is an excellent dressing in supurative cavities inasmuch as it promotes healing of chronic suppurations, inducing rapid formation of healthy granulations.

SOME EXPERIMENTS TO DETERMINE THE PHYSICAL PROPERTIES OF CAST GOLD.*

BY C. R. BAKER, D. D. S., DAVENPORT, IOWA.

Let me explain to you some of the figures in which I have become much interested. One year ago here at the clinic I showed you some experiments with different methods of casting. It has always been my opinion that all the different methods would give good results, depending on the pressure, the suction method only being the removal of the air from the mold and thus giving the atmospheric pressure from above, the centrifugal being the pressure of centrifugal force; and I showed the steam pad with the pressure gauge attached, proving that the pressure was obtained and retained enough for all requirements. Thus all the methods are simmered down so that you may choose whichever you consider most convenient. From further experiment I am still of the opinion with regard to the different methods of casting, that good work can be obtained from all. The most perfect and easily controlled is what we want. We have been considering too much the different methods or machines, thinking we can attain perfection simply by machine work, not remembering that the brain must be back of the machine, that the little detail is more important than the machine. The wax model, the investing material, the mixing, heating, the temperature of investment and melting of the gold, are the important details. If you have missed the reading of an article by Dr. Taggart in the October, 1908, number of the Digest entitled "Principles of Cast Gold Inlays," my advice to you is: Read it several times. I consider that article worth more to the dental profession than the best casting machine ever invented. It is a condensation of the most important points, many of them without the detail of proof which some of us would like to have. That article was the inspiration which led to the beginning of these experiments, a partial report of which I wish to give you today. They were not begun without skepticism as regards some statements made by Dr. Taggart, but I believe today, all disbelief has been wiped away and the most of my figures are but the proof of what he has said. I am not satisfied with my experiments in regard to the one best investing material, but whatever it may be, it must be mixed in the proper proportions with water, at the proper temperature, mixing the right length of time and not over-mixing or working. The heating must begin at a certain time after mixing, not waiting until the next day. Never cast an inlay in a hot mold. I will not consider many points that seem of much interest to me, and no doubt to you, because they are described so much better in the article spoken of, and if you really wish to study my figures more than the few minutes which I will occupy I would advise you to read that article in connection with them. The method that I have used was to make small cubes of wax in the same mold, and give four to each dentist, asking him to make casts. I requested that they make these casts one each, with three and five pennyweights of gold, that is one cast in a hot and one cast in a cold mold. Now I do not want you to get this mixed. I have had many ask me, "Well, don't you heat it up at all when you say cast in a cold mold?" Certainly; I believe you should heat it just as thoroughly as you ever heated it, and burn out all the refuse from the wax, but after you have done that, you have cleared the mold; and have heated it so that it will not change shape. Any investment compound has enough of plaster in it so that in a certain number of hours, it changes in shape, warping and changing in size, but after being heated, the mold remains the same and should be allowed to stand and cool off before casting. That is what I mean by a cold mold. Do not get mixed on this either. Some think that these casts after being made, weigh three and five pennyweights. Whereas they are all made the same size and the different amount of gold is taken simply to see whether there is a difference in the density and size of the cast after using a larger or smaller amount of gold. When I first read Dr. Taggart's article, I thought he was trying to prove that the only way to cast an inlay was with Dr. Taggart's machine and that he claimed all this was due to the use of his machine, it being the only way to get the density of gold that was greater than the ordinary density of 19.16. I read the article again and again to see if it were really possible that he made that claim, because I could not see why he should do any more than any one else. It is simply pressure. In looking over that article more thoroughly I found one place where he says, "Gentlemen, that shows us that we are using today in all these processes, whether by your process or mine, gold in a condition which no expert metallurgist in the world has used it before; they have never placed gold in the position we have placed it today." Dr. Taggart is not one-sided and I wonder how he came to the conclusions that he has in this paper without an infinite amount of experiment and yet he does not give us the detail of any of those experiments. All he gives is the results of experiments with one cast that he had tested by a metallurgist, in which he obtained a specific gravity of 19.45. Being doubtful of the possibility of that specific gravity, I made these experiments. But before I go too much into that I will describe this further. After getting those casts I made a record of the different kinds of investments; the hot or cold mold, the method used, the amount of gold used, the pressure used; (that is, where a gauge is used with pressure or suction; the standing of the gauge at the time of casting), the flame, the specific gravity and the size. I have come to but one or two conclusions, the others I have not sufficient data to decide.

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*Read before the Iowa State Dental Society, Des Moines, May, 1909.

The first thing that I wish to take up is the size. In making these casts we find that hot casts are larger than cold ones. When I read in this article of Dr. Taggart's that the hot cast was too large, I wrote on the margin of my journal these words: "Cast in hot mold is not too big." That was my opinion at that time. A cast made in a hot mold may be larger than one made in a cold mold, but it was not too big. Now, I am of the opinion that a cast made in any mold that gives you a cast larger or even as large as the cavity will never give as good results as one that is smaller than the cavity. You must take into consideration the grit and grind of the cement. It has been proven by different men years ago, that about the smallest we get the adaptation between an inlay and a tooth with the cement between, is 1/1000, and it generally runs much larger than that. If the filling is 1/1000 smaller, it is as large as can be put into the cavity and get a perfect adaptation. I claim, and I wish to say here today, that 1/10,000 of an inch in the size of an inlay larger than the cavity is almost fatal. If you have made any experiments in this line, that is, making inlays outside of the mouth for models, you will have found that it is a very difficult thing to make one that is at all satisfactory, and where do we find our failure? If we have a step cavity with a good dovetail on the occlusal, we find that that dovetail is going to draw the inlay into position towards the occlusal in such a way that when pressed down or hammered into place in the best possible way, there will be at the cervical a heavy line of cement showing. Why is that? It is simply because the cavity is prepared with almost parallel sides, and if this inlay is the same size as the cavity, the cement will take up too much space so that it raises it. Another point in these casts is, that our investing material absolutely cannot be made fine enough to give a polished surface, or get a cast that will not have some little nodules or roughness of surface that will take some slight space. You may say, as so many of us have thought, the best cast that we make is the smoothest and most polished; but is that so? I think the rough cast is the perfect shaped one. You take a smooth cast (one that is cast with the gold not too hot), and you find that if you have feather edges overlapping your margins these will be somewhat rounded, that the little roughness of the investment is not imprinted in the gold. If the gold is melted to a white heat, to a full liquid condition, and cast with a good pressure, the cast will be perfect, with good sharp feather edges, feather margins overlapping and a rough surface. I believe that the time will come when we can control the size of the cast that we want by the temperature of our investment. When we get this work down to a ecrtain point we will need a thermostat to tell the temperature of our investment when we cast, in order to get the size we want. The size of the granules of the cement we are using will be known, but it will be some time before this will be perfected.

TABLE NO. I.

	Investment.	Imperial and Silex.
Steam Pad.	Size, inches.	Specific Gravity.
3 dwt. hot	.2036	19.143
3 dwt. cold	.1998	18,876
5 dwt. hot	.2029	19.310
5 dwt. cold	.1982	21.154

TABLE NO. II.

	Investment.	Imperial and Silex.
Vacuum 17.	Size.	Specific Gravity.
3 dwt. hot	.2030	19.336
3 dwt. cold	.2001	19.935
5 dwt. hot	.2025	19.353
5 dwt. cold	.1976	19,832

TABLE NO. III.

	Investment.	Peck's.
Taggart's 12 lbs.	Size	Specific Gravity.
3 dwt. hot	.1974	19,142
3 dwt. cold	.1973	19,133
5 dwt. hot	.2000	18.308
5 dwt. cold	.1974	20.365

TABLE NO. IV.

Taggart's 6 lbs.	Investment.	Standard.
	Size	Specific Gravity.
3 dwt. hot	.1960	18.343
3 dwt. cold	.1982	18.454
5 dwt. hot	.1982	17.703
5 dwt. cold	.1982	19.496

TABLE NO. V.

Taggart's 6 lbs.	Investment.	Taggart's.
	Size	Specific Gravity.
3 dwt. hot	.1990	19,239
3 dwt. cold	.1996	19,952
5 dwt. hot	.1976	18,815
5 dwt. cold	.2003	18,546

TABLE NO. VI.

	Investment.	Peck's.
Centrifugal	Size	Specific Gravity.
3 dwt. hot	.1975	20,464
3 dwt. cold	.1963	19,917
5 dwt. hot	.1945	18,248
5 dwt. cold	.1944	19,048

TABLE NO. VII.

	Investment.	Plaster and Silex.
Vacuum 15	Size	Specific Gravity.
3 dwt. hot	.2025	19.494
3 dwt. cold	.1993	17,410
5 dwt hot	.2030	18,895
5 dwt. cold	.1960	19.385

As a general rule the averages of these tables are what must be considered most conclusive. Let us look over the measurements as to size shown in the first column of figures in these tables. In tables I, II, III, VI, and VII, the hot casts are regularly larger than the cold casts and with little thought we see that the expansion of the investment makes the mold larger when hot. Some of the other casts are affected, I think, by the length of time taken for adjustments in machines, the mold cooling too much when supposed to be cast hot.

In going through the sizes I wish to simply point to Table No. IV. As I say, I haven't the data for taking up the investment material but here is one that is peculiar, with the exception of the cast made with three dwt. in a cold mold, we have three casts, two of them made in cold molds and one in a hot mold. They are exactly the same size to the 1/1000 of an inch; it is a peculiarity. Whether that is due in any way to the investing material I cannot say. Here is another thing that I am not certain about. I made a record of the different flames for the casting and supposed of course there would be quite a difference where we had used the nitrous oxid or the oxhydrogen flame or anything that would give us the really hot liquid gold, but my best casts, as to density, were made with a compressed air flame. I wish some one would experiment and see if he can find an investment into which we can cast in a careless way, hot or cold, and still get a cast of the same size. And yet, do we want that? We cannot control then the size of the cast that we wish to obtain. Whereas, when we get an investment that does really vary with exactness according to the temperature, we can get a cast of the size we want. The average size of the wax cubes is .1995.

From these figures, we find that the average size of the casts made in the cold mold is .1980 of an inch. The average of those made in a hot mold is .1998 of an inch, the difference being almost .002.

VOICE: Wouldn't that be 2/10000, Doctor?

DR. BAKER: No. 18/10000, almost 2/1000. The variation in size between the largest and the smallest cast is worth considering. If we have a smaller variation in the fourteen casts that were made in a cold mold, it simply shows us that there is not as much danger of getting inaccurate casts. In the cold mold we have a variation from the poorest to the best of almost 6/1000; in the hot casts we have a variation of over 9/1000. You see the cold mold is better and more certain of a cast of the proper size than the hot mold.

Specific Gravity. Some say, "The specific gravity don't amount to much," but it shows this, that we have a cast which will not have as many bubbles, because a bubble or a pit in the cast would give a low specific gravity. A high specific gravity or density will surely give a better wearing inlay. Referring to the tables again. The second row of figures show the specific gravity. We find that, with but few exceptions, the casts made in the cold molds are of higher specific gravity.

Here is something that shows a peculiarity always thought to be impossible. When Dr. Taggart reported a specific gravity of 19.45, that is 19 and 45/100 times the weight of water, it seemed impossible. All chemists have found gold to be 19.16 and with but very little variation in a cast or welded piece. But when we use gold as it is used today, casting it under pressure and this pressure being held on the gold when liquid, we have a condition that has never been used before, pressure under heat, in a liquid condition, and cooling off quickly in a cold mold in such a way that it holds the pressure. Here is one point too, I think that a small sprue gives better results than a large one. The cooling takes place in the mold and is held there by the small opening. It cannot contract above and draw up.

I sent these cubes to the physics department of the State University of Iowa, not knowing what they would find as to the specific gravity; but when they came back, to my surprise, here were specific gravities of 21.154, 20.464, 20,365 etc., much higher than I supposed it could be. The specific gravity of gold cast in a cold mold is something wonderful and we see that we get a density that could not be obtained in any other way. Some of these hot casts are high specific gravity too, but it simply shows the average specific gravity is greater in the casts made in cold molds, than in hot ones. We have an average specific gravity in the cold casts of 19.412 and in the hot casts we have an average of specific gravity of 18.984. Many of these specific gravities drop lower than that, as low as 17.41, but some of them no doubt have bubbles and some of them chips of the plaster broken off from the mold in the cast, invested in the gold. Such things may take place and give us a poor specific gravity, but in the cold casts there is less danger of that because we really get a higher specific gravity. I will only say that casting is something that we do not know all about yet. Many thought at first that casting had simplified dentistry so that it would kill the profession, but when you see what there really is and what we can do with casting scientifically, there is much still to be learned.

In concluding: My first conclusion is, that the only way to cast gold inlays is in a cold mold and, gentlemen, I only began to do that in my regular practice two or three weeks ago, after all these figures were practically finished. I wanted the proof, and let me say, I am as enthusiastic today over casting in a cold mold as when I first learned the principles of casting. I believe that it opens up to us almost a perfect method. With a cold mold we get a better specific gravity.

REMOVAL OF PULPS.

BY DR. H. A. CROSS, CHICAGO, ILL.

When we find it necessary to devitalize and remove a pulp from a distal cavity in a molar or bicuspid, the operation may be simplified by adopting the following method:

Remove all the decay possible near the pulp and provide for retention for a permanent filling, such as amalgam or Ascher's Artificial Enamel, preferably the latter. Apply the devitalizing paste and place over it a metal disk of sufficient strength to resist the pressure of inserting the permanent filling. Insert the filling and finish as you wish it to remain permanently. When the devitalizing agent has remained in the tooth the desired length of time, make a new opening into the pulp chamber through the occlusal surface of the tooth far enough mesially to enable you to gain access to all the canals, and remove the devitalizing agent and all the decay that remained in the cavity. Then proceed with the treatments and canal filling in the usual way.

You thus avoid the difficulty of trying to apply the required treatment through the almost inaccessible distal cavity. The occlusal cavity may be filled with a permanent filling after the root canals have been successfully filled. In this way you will find it unnecessary to cut away the crown to such an extent as to weaken it, as would result if a mesial opening was made to gain access to the canals.

PROCEEDINGS OF SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting was held November 16, 1909, with the President, Dr. W. H. G. Logan, in the Chair.

Dr. N. S. Hoff, of Ann Arbor, Michigan, read a paper, by invitation, entitled, "Oral Hygiene for the Profession."

DISCUSSION.

DR. J. V. CONZETT, DUBUQUE, IOWA:

Mr. President and Members: I feel that I want to thank the Society and the committee having in charge the program, for the opportunity of meeting Dr. Hoff face to face, and hearing this masterly essay which he has given us tonight. I feel that it would be superfluous to compliment him on his essay, but I want to thank him for bringing this subject before us in the manner in which he has done, and I want to thank him for the inspiration which he has given us for better work along this line.

The dental profession has made an advancement which is almost incalculable in the past fifty years. The fathers who have gone before us have given us a heritage which it is almost impossible for us to realize, and they have given us a profession which it is our duty to hand down to posterity, and as the heritage of the past becomes a debt to the future, so you and I must carry the principles which our fathers have handed down to us to posterity, and as we are indebted to the fathers for the practical part of dentistry, so the future looks to us to solve the problem of prophylaxis and to prevent the diseases which we are called upon to combat. I believe Dr. Hoff sounded the right note tonight when he stated that this problem can be solved, and will be solved along the line of prophylaxis. There is nothing so important in dentistry today as prophylaxis, or the prevention of the diseases which we are called upon to combat. As an ounce of prevention is worth more than a pound of cure, so the prevention of caries and pyorrhea is far more important than the cure of those diseases after they have taken place. You may ask, does prophylaxis prevent? Yes, relatively yes, in some cases; absolutely yes in others. I believe that pyorrhea can be absolutely prevented, and I believe that caries can be relatively prevented by a systematic course of prophylaxis. By that, however, it does not mean that because a man occasionally cleans his teeth it will prevent caries of the teeth, or will prevent pyorrhea. We know more about the etiology of caries than we know about the etiology of pyorrhea, and we know enough to know that caries of the teeth is caused by a microorganism, which invades the tooth structures. These organisms are found in some protected portion of the teeth, and they protect themselves by gelatinous plaques, through which the fluids of the mouth can pass in, and the products of the organisms pass out. The bacteria are protected by the osmotic membrane, and under its protection are capable of carrying on their destructive work. Only as the bacteria are attached to the teeth and protected by this osmatic membrane, are they able to destroy the teeth. If we can prevent the bacterial plaques from becoming attached to the surface of the teeth, then we can prevent decay of the tooth substance. It makes no difference whether we prevent it by chemical means or by mechanical means. The profession in the past has tried to prevent caries of the teeth by chemical and antiseptic means, and has failed, but a measure has been given to the profession in the past few years, by which the mechanical removal of the bacterial plaques has been successful. We are successful in removing these plaques, if we are allowed to carry out the prophylactic measures, as we would like to do. Unfortunately we do not have absolute control of our patients at all times. We cannot compel them to come to us when we want them to do so, or just when we think they ought to come to our offices, and in a measure in which we fail in that respect, in that measure will we fail in our prophylaxis, because unless prophylaxis is frequently and thoroughly carried out, measures along the line of the preventing of decay of the teeth will fail.

If we can influence patients to come to us frequently, and if we can induce them to thoroughly cleanse the surfaces of the teeth during the intervals between visits, we will prevent the decay of the teeth. The same is also true in regard to pyorrhea. I will not say that all cases of pyorrhea can be cured, because I believe that any man who says every case can be cured is just as much of a truth teller as the physician who says that every case of tuberculosis, or every case of typhoid fever or pneumonia can be cured, because I believe there are cases of pyorrhea that are incurable. The disease has progressed to such an extent in some cases that it is practically impossible to replace these teeth in a state of health. I believe, however, it is possible in all cases to prevent pyorrhea, if the patient places himself in our hands for prophylactic treatment.

If I were to criticise the paper in any respect—and I have absolutely no wish to do so—it is that Dr. Hoff has not brought to us practical methods of prophylaxis. I appreciate the fact that there is greater need of education in this matter, than there is of practical methods at this time. There is need for the education of the profession. There is the need for the education of the public, and I wish to emphasize that part of his paper. If we are going to succeed in preventing decay of the teeth, if we are going to succeed in preventing pyorrhea in the mouths of our patients, then the profession must be awakened to the importance of prophylaxis, and must begin to educate the people. Some of you may say that it is not necessary to emphasize that fact before the Chicago-Odontographic

Society. Perhaps it is not. I believe this Society and the members thereof are alive to the importance of this subject, and I believe that a great many of the members of this Society are putting into practice what Dr. Hoff has said tonight. This Society stands head and shoulders above any other organization of its kind in this country, on account of its scientific attainments, and members of the dental profession elsewhere are looking to you for leadership. We will expect you to take hold of this problem, and it is to be hoped that the members of this Society will make certain points more prominent in connection with this subject in the future. I believe it is our duty to take up a study of prophlaxis, and impress its importance upon the profession at large, in order that the members throughout the country may make it a part of their practice until the laity and profession become thoroughly awakened to the importance of prevention of disease. People are willing to pay for the cure of disease, but how difficult it is to get them to thoroughly realize the importance of its prevention. They are not fully alive to its dangers, and so it is a difficult matter to instill into their minds the importance of its prevention. We *can* get them to appreciate the importance of it, and I know *you* can do so, because many of you are putting the principles of prophylaxis into your daily practice. How is it done? In my office every patient that comes to me is instructed as to the importance of prophylactic treatment, and my assistant takes the name of every patient and makes engagements for future treatment. The names and addresses of these patients are put upon our books, and when the proper time comes they are duly notified to come to the office for treatment. We do not depend upon their memories, but when the proper time comes my assistant goes to the telephone and calls the patient up, and says that there is time for treatment. In this way they come to the office at stated intervals when treatments are given. If you rely upon their memories you will find that they will fail. I want to illustrate this by saying that my assistant called up a patient the other day, and said it was time for her to come to the office for a treatment. When the assistant referred to the books she found it was three months since she had been to the office, but the patient insisted that she was only there a week or two before. It is not because these patients wilfully forget, but because they do not realize or appreciate the importance of what we do for them in this way.

Does prophylaxis prevent? It does prevent, and if you can get your patient to fully appreciate the importance of it; if you can get them to follow out your instructions with reference to the necessary brushing of the teeth and the necessary toilet of the mouth daily, then you can accomplish a good deal; but unless you can impress upon a patient the importance of following out your instructions you will not get the results that you desire. You must place your patient in such a condition and frame of mind that he or she, as the case may be, will go away and try to do what you have told her. Unless this is done they will totally neglect all toilet of the mouth, and the second state of those patients will be worse than the first. It is not only a matter of cleansing the teeth. Dr. Hoff spoke about Horace Fletcher. I really believe that Horace Fletcher is doing more good in the United States today than any one man in the dental profession, or outside of it. He is constantly preaching the doctrine of chewing. While I do not believe in everything that he says, yet I agree with very much of what he preaches. I do not believe in his eating when he wants to and not eating when he does not want to. I believe in regularity in eating. I believe one of the greatest deleterious influences we have to contend with in the treatment of children and adults, is the pernicious habit of eating between meals, this everlasting habit of munching and eating things after they leave the table, and after they have cleansed their teeth. It means that there are starchy products in the mouth all the time. So the thing I want to impress upon your minds is not simply the problem of how to take care of the teeth; it is not simply the problem altogether of how to combat certain microorganisms which inhabit the mouth, as Dr. Miller pointed out some time ago, but it is largely a food problem. Dr. Miller, as you will remember, found certain alkaline secreting organisms, which are non-pathogenic, become acid secreting organisms upon the addition of a certain amount of sugar to the pabulum. The old practitioners of dentistry used to tell their patients they lost their teeth because they ate too much sweets. Then came a line of dentists who told patients that they need not be afraid of eating too much sugar, so far as it having any effect on the teeth was concerned; but investigations have shown that where patients eat articles of food mixed with a good deal of sugar, more or less debris collect upon the teeth and becomes a suitable pabulum upon which the organisms may live. All of us have patients who are confirmed candy-eaters, particularly those who are employed in candy factories, and it is impossible to keep the teeth of such people in a good condition. Three or four cases of that kind come to my mind.

A man who worked in a confectionery shop came to my office with his teeth in a deplorable condition. He said it was impossible to prevent his teeth from going to pieces. In other words, his teeth melted away like snow before the summer sun. He told me that when he was in the shop he ate candy all the time. I said to him, cut it out, but he would not do so. He left the candy shop and became interested in the automobile business. During the time he was so engaged, he was out of my hands, and at the end of a year his teeth were in a splendid condition. In a short time he came to me again, having left the automobile business, and gone back into the confectionery shop, when he again began to eat candy as freely as he did before, and his teeth were soon in as bad condition as they had ever been.

I had another patient in the same condition, but he cut out candy and saved his teeth. So we must not only instruct our patients with regard to brushing and cleaning their teeth, but give them advice as to what they should eat, and as I believe, as I have previously said, that Mr. Fletcher's advice to chew and chew and chew food before swallowing it is very sound. We know that one of the fundamental principles is to use our teeth, and to use them freely and thoroughly. When we use our teeth in chewing hard substances we stimulate the peridental membrane to healthy activity, and we cleanse the surfaces of the teeth by exercise during mastication.

Dr. Hoff said we may sterilize the mouths of our patients by the use of certain antiseptics, but if we do that they would soon become infected again. I am not sure it is the best thing to sterilize the mouths of our patients. I am not sure that Nature intends the mouth to be a sterile cavity. It is believed that there are many organisms in the mouth for a beneficent purpose. We know that there are some non-pathogenic organisms in the human body which serve a good purpose. You remember Dr. Miller in connection with the theory of symbiosis advanced the idea there were certain non-pathogenic organisms which developed in the oral cavity and that when these predominate, there is no decay, but when they are crowded out by the pathogenic organisms, and the equilibrium of the individual is disturbed, the pathogenic organisms predominate and decay of the teeth occurs.

Recently there has been a revival of the idea that the sulphocyanide of potassium has something to do with inhibiting the growth of microorganisms. Michaels, of Paris, brought that out years ago, and the New York Odontological Society have taken it up. In the November issue of *The Dental-Cosmos* Hans Hecht has written an article entitled, "A Contribution to the Prophylactic Treatment of Caries," which should be read by all of you, as it has a bearing on this subject. Dr. Black takes the position that sulpho-cyanide of potassium may prevent the formation of bacterial plaques, and if it does that it will prevent decay of the teeth. The author of the article to which I have alluded as having been published in the November issue of *The Dental-Cosmos,* corroborates that view, and we may be on the right line. I hope it may be true, and I hope the ideal which Dr. Miller set forth, namely, that some means may be discovered whereby the teeth of the poor may be saved, will be soon realized.

DR. F. H. SKINNER, CHICAGO:

The essayist has handled his subject in such a broad way that it leaves little room for discussion for one who has practiced oral prophylaxis and seen the beneficial results to the teeth, gums, mouth, and its connections, and frequently the general constitutional condition of the patient. The only criticism seems to be that of omission rather than commission, so I shall confine my remarks to emphasizing some of the things he has said and filling in where the sin of omission seems apparent.

The essayist says: "and have left this department, the one that is fundamental, to be carried on by a few, regardless of your own responsibilities." To those who enter its doors, every dental office should be a center of education on oral hygiene and prophylaxis. If we have confidence in what we are doing and are conscientious, as we become enthusiastic along any line of work, we inspire our patients with confidence, and in no branch of dentistry is this more applicable than in oral prophylaxis. A great deal of this work can be done at home, at a very small financial outlay and a little time, and in this way Dr. Miller's ideals can, in a greater or lesser degree, according to the ability of the patient, be realized.

In the first place, no one dentist or patient, knows when the surfaces of the teeth are free from gelatin or mucous plaques and other injurious substances, without the use of a staining solution, for the plaques, as a rule are transparent. Then the tooth brush, alone, is insufficient, for it touches only the occlusal, buccal or labial, and lingual surfaces at best, and then allows an accumulation to gather at the cervical margins. Each patient should be provided with a magnifying dental mouth mirror, with which, with the aid of a good mirror and the staining solution, all foreign substance can be located and then polished off with an orangewood stick, wrong end of a match, or Porte polisher, and the tape to reach and polish the proximal surfaces. One-half hour, a couple of times a week, spent in this way, will save such frequent trips to the dentist and give better results.

The essayist again says: "I would begin to care for the teeth and the child's mouth as soon as interference was indicated." It would be better to say: to begin care as soon as the teeth begin to erupt. This need not be at the dental office even, but instruct the nurse or mother how to keep those little surfaces free from foreign substances. Of course periodical visits to the dentist are preferable.

Silicious cements and amalgams will prove much better tooth preservers if they are put into cavities lined with soft oxy-phosphate cement, and too much emphasis cannot be laid on the benefits of fissures being protected with cement before any decay has set in, especially the first permanent molars.

There is one phase of this subject that does not deal directly with the paper, and yet I am going to ask the essayist's and your indulgence. Ninety-five per cent of the human family have accumulation of some kind constantly gathering on their teeth, yet we rarely see progressive caries and pyorrhoea advancing in the same mouth at the same time. During the age designated by the essayist as the first period, the lime salts are being used to build up bone tissue, and the teeth are more subject to caries, but during the second and third periods, the lime salt is held in the saliva in such quantity and character as to mix with debris which accumulates on the teeth sufficiently to neutralize acid formed, so that the tooth structure itself is not injured, but the deposit is more aggressive, hence more irritating to the soft tissue, and pyorrhoea is the result.

But, whatever the nature of the deposit, periodical prophylactic treatment will keep a healthy oral condition, and while the mouth presents a much more agreeable appearance, it is not so much what they see as what they feel, that makes the work so satisfactory to patients. But it is hard work, and a dentist should receive as much per hour for a prophylactic treatment as he would get for making a filling or crown when teeth have been allowed to decay. Good work lasts long after the fee is forgotten.

The alignment and occlusion are a very important part of this paper, but I believe are to be discussed by those specializing along that line.

It is true that the mouth cannot be made sterile, but it is possible to keep the surfaces of the teeth so clean that acid forming bacteria will have nothing upon which to work, and with normal occlusion, in doing this, pyorrhoea will be an unknown quantity. But when it has started, pyorrhoea can, I believe, be cured on any tooth of which the apex is not denuded, absorption has not started and there is enough process to support it.

All bridge-work must be made so that the gingival line and roots of the teeth used for abutments should be accessible to brush, tape and polisher.

For those who are not already in the ranks, take one mouth and practice oral prophylaxis on it for six months. At the end of that time, if you have carried out your work honestly and conscientiously and asked a just compensation, your enthusiasm will soon spread to the rest of your practice, as well as to some of your brother practitioners.

I wish to thank the essayist for giving us the benefit of his long experience and to congratulate the Society on its good fortune in procuring this excellent paper by Dr. Hoff.

Dr. S. G. McCallin:

To say that I appreciated Dr. Hoff's paper is putting it mildly. He has presented the subject in a broad and comprehensive manner and this broad-minded view of it should stimulate us all to look at the matter in a broad and far-reaching way. While he has not given us details as to actual technique in all his operations, this is of minor importance. If we become inspired with a desire to do more in our practices along this line the mere technique itself will be easily acquired.

Of course the practical application of oral prophylaxis to our practices must be considered and the remuneration we can expect to receive for it must be considered. It does not look hopeful to think that after some years of endeavor in this line we would be doing nothing but polishing perfect teeth. It seems reasonable to me that after perfect health is established in a mouth and ideas of perfect care are established in the patient's mind, well trained assistants could carry on the work in a proper manner. I know of men in the profession who do all of this work themselves and thereby greatly reduce their income earning capacity. This, I believe, demands consideration, especially by the older men who would necessarily be compelled to overthrow set rules of practice in order to accomplish the new work. I think this is an important aspect of the situation at present. However, when these men become convinced of the worth and possibilities of the new idea they will no doubt be its strongest supporters.

In his paper Dr. Hoff has covered the ground so thoroughly that there is little outside of it to speak of and little in it to disagree with.

As to the possibility of cure in badly diseased and infected mouths. Why should one man judge the ability of another by his own inability? We know that cures have been established in such mouths. There are a greater number of men every day who are bringing about these cures. Therefore, I do not understand the attitude of the man who says to his suffering patient that there is no cure and that the teeth must be lost. Such an attitude seems unfair to himself as well as to others.

When we see mouths reeking with pus and infectious material, we can easily see a sure and certain cause for an ever depressing effect on the health of the patient. The contamination of each article of food in the mouth must cause a poor assimilation as it goes further on. It would be better that this patient did not chew his food well, but bolted it whole; or it would be better that his mouth were edentulous. And this contamination must necessarily be present in all uncared-for mouths from childhood to old age.

Dr. Cook has said much on this subject of susceptibility along these lines, and we must admit the great good that will come from a consideration of this in relation to all disease of the mouth. This question of susceptibility will weigh heavily, I believe, in our final decision as to whether or not these diseased conditions of the mouth are due to local or systemic causes. But whatever the cause may be, we know what can be done by a manipulative treatment—skillfully applied. And knowing this I cannot see any possible excuse for our not doing all we know for these cases. Many excesses have been committed in the name of oral prophylaxis, but this should not stop any one from trying to do more perfect work.

Dr. Hoff has mentioned the names of men who have been pioneers in promoting a study of oral prophylaxis. They deserve praise and honor at our hands. Their ideas and a knowledge of the results to be obtained should be taught the dental students of today. Without these ideas and ideals the graduate can only be considered as half equipped to serve the public as a dentist. Again I thank Dr. Hoff for his fine paper. I hope it won't be the last we shall have from him.

Dr. J. N. Crouse:

I never listen to this subject being discussed without getting tired before the end comes, for the reason that practitioners of dentistry, both young and old, tell us that we do not instruct our patients in regard to prophylaxis, or how to keep the teeth clean, for that is simply what prophylaxis means. I take it that the successful practitioners of dentistry have practiced prophylaxis, and have preached it to their patients for many, many years, and yet we are told tonight this is new. If any member of this Society can show me in the papers that have been read this evening anything that is really new, I would like to have him do so. If it takes more skill to remove with a piece of orangewood and some pumice stone, material that has lodged upon the necks of the teeth, than to build a good bridge in the mouth, or to put in a good gold filling along with instructions which we give to our patients, how to care for the teeth, then I do not know how to practice dentistry.

I have listened to similar papers in the past; I have attended clinics and seen different operations, and it makes me impatient in a very short time when men demonstrate something which they consider new, but which has been done by other practitioners years and years before. The method of doing a thing may be a little different. but it is not sufficient to warrant the use of the term "original" or "new." We have been told that we should advocate and advise our patients to clean their teeth more. Speaking for myself it takes me half an hour every night to get my teeth and mouth in a condition so that I can go to sleep comfortably. It takes a large amount of skill to do this, but with a good mouth wash and a good tooth powder and brush I can get my teeth clean. I tell my patients that. I repeatedly ask them, "how do you clean your teeth?" Patients have frequently told me that they only spend two or three minutes in cleaning their teeth, and I know by looking at their teeth and seeing the condition they are in that they are telling the truth. When patients come to my office I get them to illustrate their way of cleaning their teeth, and then I arrange for another appointment and let them try it again, and keep it up until they get their teeth clean. I regard that as much better instruction than anything we have heard in these papers tonight. Patients will remember that. If that advice or instruction is not sufficient then use peroxide of hydrogen and a mirror, and get along the sides of the teeth to the places where the patients have not touched, and pump the peroxide of hydrogen over these places and show them the parts of the teeth they have neglected to clean. If the older practitioners of dentistry do not practice oral prophylaxis or do not know how to do it, then they had better have young men in their offices who can. Some practitioners have abandoned the practice of filling teeth, and are doing nothing else but keeping patients' teeth clean. I have been doing this for forty years, but have not considered it new. It seems to me that the advocates of this treatment should give us a method which we can adopt and put into practice. We want some method by which we can destroy germs in the mouth. Judging from the remarks made by Dr. Conzett, it is a question whether or not we should destroy germs that inhabit the mouth. We have had discussed both sides of the subject. One man says it is a bad thing to destroy the germs found in the mouth, or to get the mouth sterilized, while another says it is a good thing. Then another man said it is a question whether we should chew food or swallow it whole. There seems to be a slight conflict of opinion here, and if anybody has got definite ideas about the matter, and if they will go home better pleased or in better position to practice dentistry than they were before this evening, I fail to see it. I think food ought to be chewed, and well chewed, as it helps to clean the teeth. Maybe that is not true, but that is my idea about it. I have not been convinced at this meeting that I am wrong in that respect.

My friend Hoff has read a nice paper, and he has told us what we ought to do, but we knew that before he came. I was in hopes that he would give us a method which we could adopt and put into practice in our daily work.

What I would like to have these gentlemen talk about is some new use of floss silk, of pumice stone, or give us some good tooth powder or mouth wash. As I have said before, if there has been anything new advanced along this line of work which was not generally known before, I would like to have Dr. Hoff mention it in closing the discussion.

Dr. C. E. Bentley:

I know that Dr. Hoff and everybody here seldom think of taking Dr. Crouse seriously. He epitomized the whole substance of this matter when he said "I cannot tell you anything new." That is a sad admission for Dr. Crouse to make. If Dr. Crouse lives in the antiquated past, where he admits that he cannot tell us anything new, then it is a sad admission for him to make. But I do not think that the younger men in the audience, and the men who are upon the threshold of dentistry, and consequently upon the threshold of their professional career, should really take Dr. Crouse too seriously in what he has said. This is something new. This is something potent, and it portends a future in dentistry that you and I will be proud of in days to come. I cannot speak personally, to any great extent, as to what this has done for me, or the patients whom I serve. I have been practicing prophylactic treatment for at least eighteen months or two years, and as I proceed and progress with this treatment conservatively, I am amazed and highly pleased with the results that I have obtained. The greatest compliment Dr. Hoff paid this audience was by not going into details. He left a great deal to your intelligence and imagination, and in that he is to be complimented. There is no need for anyone to go into the details, for there are so many of them connected with this subject. These details ramify. When, for instance, a person has pyorrhea alveolaris and accompanying it has Bright's disease, or some other systemic condition which is aggravating the local condition, you cannot go into details; you may have to consult the physician of the patient, and you simply become supplemental in your work to the physician. So, as I started to say, this to me has been a great revelation, and as I talk with men of my own profession every day, and we talk this matter over and over, I find the consensus of opinion is that the men who are treating this disease are getting results that are astounding, and that their patients are appreciative, and not only appreciative, but are willing to compensate them for this service.

Now, there is one man with whom many of you do not agree, and who is considered erratic, namely, Dr. D. D. Smith, who is largely responsible for this prophylactic wave that is sweeping over the country today, and it is to him that I owe a great deal of my inspiration and enthusiasm, for I have looked at his patients in his office, and have seen his work, and to him I owe a debt of gratitude for my enthusiasm, and for having seen him do the work, and the results he has obtained by so doing, together with my own association with other men, who have been doing this work as well, and I say that each day and each week finds me more and more enthusiastic and more and more competent, and I am able to give my patients greater service by using this prophylactic treatment. This much I should not have said had not Dr. Crouse so flippantly spoken as he did, with reference to this important subject, and my remarks are especially directed to the younger men.

There is one other thing that weighs upon my conscience tremendously at times, and it was forecasted in the fore part of the paper read by the essayist, and even at the risk of being a little in bad form in not discussing the paper, I think I will say a few words with reference to some parts of the paper, which I regard as one of the most important things of all, and that is our duty to the public. Dr. Hoff claims that our dental literature is completely honey-combed everywhere with the idea that the teeth of the public are absolutely going to the demnition bow-wows by reason of their neglect and ignorance on the part of the people to care for them; that filthy mouths are breeding disease, and that a great many diseases emanate from filthy mouths, and that the poor are the greatest sufferers. Now, gentlemen, I want to ask you in all seriousness, what is our duty in the premises? In other words, what are we doing as a profession to acquaint the people, the public, with the necessity of escaping the rigors of these very things that have found their way in current literature? Here comes a man from outside the dental profession, who has done more to attract the attention of the public to the needs of their teeth than even the members of our profession. Horace Fletcher is more responsible for people chewing their food today than the entire dental profession. What I want to get at is this: The medical profession is rife with the idea of hygiene, the manner of eating food, the manner of chewing it, the proper way to exercise, the proper clothing, etc. Other organizations are concerned with pure food, and it seems to me all intellectual bodies should be closely allied in their efforts to make the life of man and woman longer and happier on earth, but what are we doing as a profession? Absolutely nothing in an organized way. Individually we meet a few people and do you know we only treat 20 per cent. of the people of Chicago; that 80 per cent. of the people do not come to us for dental services, but only for the relief of pain, for teeth to be extracted or plates made? What are we doing with the other 80 per cent? Absolutely nothing. I leave this question for you to answer. Is not the Chicago-Odontographic Society, with all of its achievements, which have been recited to us by the gentlemen who do not live here, in some regards responsible for its existence to the public by giving back to the public some of the things they should give to them? Ought not this Society be sponsor for some sort of intellectual dissemination with reference to the care of the teeth and the rigors that follow on account of the neglect of these teeth? Personally I think the Chicago-Odontographic Society should be sponsor for some set of lectures, some bit of literature, which shall get into the newspapers or some tracts. There are three media that can be used. Tracts can be published, lectures can be given and the public press utilized to acquaint the people with the necessity of the importance of oral hygiene.

Finally, I wish to say that this paper tonight is an inspiration along that line, and the fore part of it was full of suggestions. Its ideals were magnificent and I am very thankful to Dr. Hoff personally for coming here and reading it.

Dr. John P. Buckley:

Mr. President, Ladies and Gentlemen: If I were to discuss the paper at all, I would prefer not to follow my eloquent friend, Dr. Bentley, because it makes it so much more difficult to attempt to discuss a paper after he has discussed it.

I regret very much that I could not hear all of Dr. Hoff's paper. It seemed essential that this room be ventilated, and as I suffered the penalty of sitting near the ventilator, I did not hear all that Dr. Hoff said. I know, however, that his paper was an excellent one. He emphasized, as did Dr. Bentley, and others the importance of educating the public, and there is today a prophylactic wave floating over the profession which will result in good to the laity, almost beyond our expectations.

There are two sources of neglect of the teeth resulting in caries and pyorrhea. These two conditions seem to be the ones that are uppermost in our minds when we are discussing the general subject of prophylaxis. One of these sources of neglect is that on the part of the patient. The other one, as has been emphasised, is neglect on the part of the dentist, especially is this true of pyorrhea. A great many dentists have instructed these pyorrheal patients to let their teeth go, and then have them removed, saying that practically nothing could be done for them. So I say one cause of pyorrhea is neglect on part of the dentist. The dentist in far too many instances, has not done his duty towards his patient, and if this paper will be the means of stimulating us to do the work necessary to get the results, a great deal will have been accomplished by the men who have taken part in the discussion tonight, and by others in this city and throughout this country. If the paper does nothing else but stimulate those men that have been instructing their patients that nothing could be done for their teeth when they were affected with pyorrhea, but to let them go and ultimately have them removed, it will have done wonderful good. I, for one, want to thank Dr. Hoff for coming here and reading this admirable paper.

Of course none of us take Dr. Crouse too seriously. Dr. Crouse always makes us laugh, and sometimes he does not mean all that he says. He says many of these things with the idea of stimulating us to action, and he generally gets us to act as a result of the impression which he gives us.

Two or three weeks ago I had the pleasure of attending the Northeastern Dental Association at Providence, R. I., which Society was addressed by Dr. Wiley, and I wish all of you could have heard that lecture. Dr. Wiley has done a vast amount of work in getting pure foods and pure drugs, and he told a story. He is a bachelor. A friend of his had a little child, and Dr. Wiley told of the importance of the eruption of the first tooth; how everybody wanted to give that child a present, and Dr. Wiley bought a tooth-brush for the child, and I tell you that went home to me. To think that Dr. Wiley, the head of the Chemical Department of our government, would feel that the best thing he could do was to buy a tooth-brush for the little child, and he said that not purely to an audience of dentists, but to a lay-audience, for the citizens of Providence had been invited to the lecture.

We have on our statute books a pure food law and a pure drug act, but it does not matter how pure the food may be if we bring it to the vestibule of the body, and there mix it with all the filth of which the mouth is capable, and swallow it. I would prefer to have my food not so pure and have my mouth clean, than I would to have my food absolutely pure, and have it mixed with the oral filth and bacteria that are lurking in some mouths that you and I see. The dentist has a duty to perform, as Dr. Bentley has so well emphasized. It is for us to wake up and to become active and educate the public by means of some kind, and I do not know of any other and better avenues than the three Dr. Bentley has mentioned.

There are a great many things that might be said in connection with this subject, but I believe that there are others in the audience who are anxious to talk, or to take part in this discussion, and I shall not occupy any more of your time. I thank you.

Dr. A. F. James:

I wish to congratulate this Society, and to thank Dr. Hoff for presenting this subject in the admirable manner in which he has this evening. He has given words of encouragement to every dentist to do better work along this line than they have ever done before, More dentists have been interesting themselves in this work within the last few years than have ever been interested before. They are doing more thorough work, and I want to say I believe that we can get just as definite results along this line as in any work that we undertake. We can get as definite results as in filling teeth or putting on crowns or bridges. You see the results, and you know what you are doing, just as thoroughly as any work you do.

Dr. C. E. Meerhoff:

I have only two statements I wish to make; one of them defending the position taken by the essayist with reference to the dissemination of more knowledge along the lines of oral prophylaxis. The dentist who serves no less a man than Mr. Horace Fletcher, of whom we have heard this evening, informed me within the past ten days that the dental profession at large did not know to what extent Mr. Fletcher's mouth and teeth needed attention, but after he finished taking care of his mouth and teeth, Mr. Fletcher became a strong advocate of oral prophylaxis.

The other point I want to make is to substantiate the statements that have been made by the author of the paper this evening in regard to the care of patients during the first and second periods which he named. An important point was brought to my notice within the past few days. In talking with Dr. Spaulding of Detroit, I find that he has been an advocate of oral prophylaxis for seven or eight years. Remember he has had Dr. Rogers with him as an associate, and he is devoting his entire time now to the prophylactic treatment.. He told me last Friday that he did not know what had become of the children in his practice, because they were all in Dr. Roger's hands, who was doing nothing but practicing oral prophylaxis. I think those are two salient points in favor of prophylaxis, and the dissemination of knowledge in the scheme of treatment.

Dr. Truman W. Brophy:

I had not expected to say anything this evening, knowing there are so many here who are engaged in this special work. While the essayist was reading his paper I was impressed with the thought that the life work of a man may live after him and the influence which he exerted during that life may live and receive an impetus and be carried along to a limit which the most sanguine of us never dreamed of. It seems to me fitting that a man upon whom the official mantle of the great Miller, the great master of prophylaxis, has fallen, should come to us and present this paper, which seems something like a message from the other world. And so I believe that if it were possible, and if such a condition ever did exist, that Miller's influence is here tonight. Every man and woman in the dental profession feels that his work is being carried on by his successor. Whether this thought occurred to the essayist or not I do not know.

The great field of oral prophylaxis is the most important before mankind today. With a knowledge of bacteriology which has come to us within a brief period this subject has grown to enormous proportions. There is no work today that has more to do with the longevity of man, with the prevention of disease, with the stopping of general infection than that we are dealing with tonight. We have listened to men eminent in the profession who have presented their views this evening on this subject and we realize more now than we ever did the importance of a profound study on this subject.

I would like to point out some of the sequelæ of a lack of prophylaxis. It has fallen upon me to deal with diseases which so frequently have their origin from diseased teeth and within the last month I have had to deal with diseases of a malignant and benign character that have had their origin from irritations set up from deposits of a salivary calculus from so-called pyorrhea alveolaris and the like and in three of these cases I know the initial lesions of carcinoma of the jaws existed in the teeth. Teeth are being lost all the time for want of knowledge perhaps, or at least for the want of exercising these prophylactic measures which are so essential to the preservation of the alveolar processes, the preservation of the maxillary bones and the preservation of health and really the saving of life. These are facts that cannot be set aside. I have demonstrated that to my medical friends and dentists with whom I have come in contact, and the impairment of health and destruction of life have come into this question deeper and deeper, and the more I see of disease of the mouth and jaws, the more I am convinced that they are due to a want of oral prophylaxis.

Dr. L. L. Davis:

If there is one thing I should like to do this evening it is to set Dr. Crouse right in the eyes of the practitioners present. I do not think he intended his talk to be as radical as it would seem, but he spoke as an old practitioner on a subject, the principles of which he has been endeavoring to carry out ever since he began the practice of dentistry. He has done this same thing, only he did not do it under the name of oral prophylaxis. Dr. Crouse did not know anything about the name prophylaxis in those days, but he has been cleaning teeth and advising his patients to keep their teeth clean for many, many years, and I believe that is what he wanted to say this evening. I think possibly he has been cleaning the teeth of his patients better and more thoroughly than a great many members of the dental profession in the city of Chicago, because I have had opportunities of seeing the mouths of patients who have been under his care for a long time, and I know that these patients have received thorough instruction from him as to what to do.

The wave of oral prophylaxis sweeping over the country is due to neglect of the average dentist in doing his duty to the patient under his charge, and is probably one of the most serious causes of disease, more especially of pyorrhea alveolaris. We find many dentists not only in the surrounding cities, but in our own city, who, when they see a case of pyorrhea, one in which the teeth are loose, send their patient to an extracting specialist. It is certainly a subject for serious thought, I do not care how it is brought before the profession, so long as it is done so that all practitioners will be able to recognize the necessity of its consideration, and if the writings of different men in the last few years have done anything to bring this matter before the average practitioner which has enabled him to do better work in the way of cleaning the teeth than he has been doing, enabling him to do more thorough work in that line, then there is no doubt the future will offer something better.

Dr. A. H. Murdow:

I want to thank the essayist for presenting such an admirable paper. I think Dr. Crouse and the essayist each spoke the truth, and that both have been and are working along the same lines. Let me examine the mouths of the dentists present, and I will show you the men who are practicing oral prophylaxis, also those who are not. Every dentist who is practicing oral prophylaxis for himself will likewise advise and instruct his patients to do so.

Dr. Hoff (closing the discussion):

I do not know that I can add anything of interest to what I have already said. I want to thank you most cordially for the sympathy which you have expressed tonight in regard to this subject. I also want to express to you my gratification in finding that so many of you are so much interested in this subject.

Dr. Crouse, I think, refuted his own argument when he undertook to tell us how he instructed his patients. If Dr. Crouse has been practicing oral prophylaxis all these years, he should have told us long before of his wonderful technique. I purposely did not bring to you the technique of this operation, because it would be trespassing upon your time entirely too much, and because the phase I have presented I consider more important. I could not present it in the paper, and you would not be satisfied if I had, because each one of you must work out his own technique. The chances are you would not adopt my method if I gave it to you. One must adopt a method which will suit his individual training and conceptions. Dr. Crouse's technique would not meet my ideals at all. I shall write another paper some day on this subject, and in it I shall describe my technique of these operations.

Dr. Crouse has said that there is nothing new about this. I have been reading the dental journals very carefully and closely for the last thirty or forty years, and if Dr. Crouse has been practicing prophylaxis all these years he never has told us anything about this subject before that I have seen. I do not remember a single place or society meeting in which he has brought up this subject in a way that I could appreciate its importance. If it is not new to him we should censure him for not bringing it to our attention before. This is one of the dental societies whose transactions we all follow closely. A few years ago Dr. C. N. Johnson told me that it was the reading of the transactions of this society which induced him to come to Chicago to live and to practice his profession. I am a constant reader of the transactions of this Society and I do not recall ever having read anything by Dr. Crouse on this subject, either in your transactions or elsewhere. Of course, he may have talked it here at home and among his friends. This thing is new to me, although it may be old to Dr. Crouse. It is true some of the principles are old, but simply cleaning the teeth by patients themselves is not prophylaxis. That is only a simple incident of it. The fundamental principles of oral prophylaxis are oral hygiene in every form and in every manner in which you can promulgate it or in which you can put it into practice. I do not care in what form you practice it, but you cannot fill teeth without having in view oral prophylaxis as a fundamental basis.

The work which Dr. Black has done so splendidly in the matter af contact filling and making contact points and preaching extension for prevention, has led up to oral hygiene, or oral prophylaxis. The whole practice of dentistry in crown and bridge work, of prosthetic work and everything is based essentially on oral prophylaxis. It is fundamental to the highest conceptions of artistic dentistry, and a few months' practice of modern oral prophylaxis will beget in you an enthusiasm for your professional work such as you have never known before. You can prevent destructive diseases by the practice of oral prophylaxis. I have been practicing it for four or five years, but during the first two years I was not much interested in it except in a speculative way. I can say seriously, however, that I have been practicing it for the last three years in earnest, and the result has been to widen my views of the possibilities of our profession. It seems to me we have been unusually slow to appreciate the advantages to be had from practicing preventive methods while we have been more enthusiastic in applauding efforts to popularize theoretical methods. I am convinced from my conversation with dentists from different parts of the country, that oral prophylaxis is not appreciated as it should be and that is the thought that I want to bring to you; not to tell the dentists of Chicago they were not doing their duty as others are, because I don't believe the profession is awake on this proposition anywhere. I feel as though I belonged to Chicago as much as I do to Michigan, and as Chicago always leads in dental matters, I want you should look into this subject carefully, as I believe it has more bearing on the future progress of our profession than any other modern propaganda. What I have brought to you this evening is simply an expression of my own experience and conceptions; I do not want any of you to accept anything I have said unless you feel inclined to do so. I have brought before you some ideas which you could either censure or endorse. The Chicago dentists should be leaders in oral prophylaxis, the same as they have been in other things. You are wide-awake and progressive men, and you can take up this subject and push it with enthusiasm and accomplish more than I can see there is hope of any other dental society in this country doing. I believe the dentists of this section of our country, when they fully realize the importance of oral prophylaxis, will promulgate the doctrine for all there is in it.

THE ODONTOLOGICAL SOCIETY OF CHICAGO.

The Annual Meeting of the Odontological Society of Chicago was held on Tuesday evening, November 2, 1909, at the residence of Dr. C. N. Johnson, 6118 Sheridan Road in celebration of the 25th anniversary of Dr. Johnson's residence in Chicago.

The meeting was preceded by a dinner at which fourteen were present, including three guests, Dr. Alexander Paterson, of Christ church, New Zealand, Dr. A. D. Burne of Sydney, Australia, and Dr. W. H. Taggart of Chicago.

After dinner the president of the society, Dr. T. W. Brophy, called Dr. Johnson to the chair and then read his annual address.

DISCUSSION.

Dr. G. W. Cook:

I am very much interested in the remarks that the President has made, in regard to the care of school children. I do not know what would be the best way to accomplish this work, but it seems to me that the President of this Society has certainly made a good start in interesting the Mayor and the Health Commissioners. If he can interest the women as well as the men, he will be entitled to much credit.

Out of about 250 children that I examined, I found four free from caries. They ranged anywhere from six to fifteen years of age. That is a fair sample of what we might expect to find in the entire school list.

I have been very much impressed with the President's remark regarding the care of children's teeth. I thought that possibly the colleges could take care of it, but I find that one of the most difficult things is to get the students interested in doing the necessary things. In handling a large number of patients, it is almost impossible to get the children cared for as they should be, and I think an experienced man would be far better in the schools. The impressions that I have had regarding children's teeth and the general dental condition might seem very alarming.

Some years ago, I read a paper before one of the Societies in the city on the investigation of tubercular cases, and much care was taken particularly to see if it was possible for the infection of the glands about the neck and jaws to come from tuberculosis of the teeth. In that report, I found that about 11 percent of the two hundred and twenty-five examined, had actual tuberculosis from badly broken down teeth. That was more alarming than the carious condition, that is, so far as the possibility of infection was concerned. The President made a remark regarding infection about the mouth and teeth, and that they were one of the principal habitats of all micro-organisms that enter the body. I think it would be fair to say that practically all the infectious diseases that enter the body go through the mouth. There is no question but that all the organisms found in infectious conditions are also found in the oral cavity. If that is true, what better work could possibly be be done than to render the mouth as nearly hygienic as possible. If this Society can take that work up and carry it out, or start it and get the profession or public interested in this thing, it will be one of the greatest benefits to humanity in Chicago, and eventually elsewhere. The address coincides so nearly with my own ideas regarding this condition that I am more than pleased to have had the opportunity to be here and hear it.

I recently gave a talk before a medical society out in Iowa. They had the school children up for discussion. There were a number of medical men who had tabulated some conditions of the mouth, and especially the tonsils, and I was wonderfully struck with the fact that those medical men had found large tonsils and adenoids and had never thought about the teeth. I think it would be an important thing to educate the doctor, as the medical man is the least concerned regarding this subject of any class of people I know.

I believe that Dr. Brophy has the influence and the acquaintance in Chicago to do a great deal towards helping us to get this thing properly before the people who would take an interest in it. If we could get the medical profession interested, it would be a great benefit, and I think he could do that.

Dr. J. G. Reid:

Mr. Chairman, it is useless for me to say that I am delighted to be present at this meeting, and to hear the address of the President. The subject, I believe, is not entirely new, because, if I recollect correctly, this question has been agitated within my own recollection for at least ten or fifteen years and maybe longer. The great trouble seems to have been that the dental profession in the City of Chicago are all troubled with the hook worm. It is unnecessary for me to explain what that is, because I presume you are all familiar with it, it is known as the lazy worm. There has never been any concerted action at any time. A paper is read, discussed, and the question ends after the reading and discussion of the paper. There may have been a trifling effort but there has never been any real activity established. This will always be the case, unless there is some earnest effort made to show that we mean to do something. I do not feel qualified to suggest how this might be done, but it seems to me that this Society is in a position where it could discuss the question among its members as a committee of the whole, as to what might be the best possible way of doing this, and then do it. It may be two or three years before we can accomplish anything definite in this direction.

I believe the President is absolutely in earnest in what he said in his paper. We have many things to contend with in making an effort of this kind in a public way. The dentist doesn't seem to be anything but a dentist after all, but there will have to be some activity started somewhere, with the determination to bring about good results. If this Society would take up this subject, and devote a year to it, as plans would suggest themselves from month to month it would be a year probably well spent.

Dr. Alexander Patterson, New Zealand:

Mr. Chairman, it gives me a great deal of pleasure to be present among you all, especially on this occasion, Dr. Johnson's 25th anniversary in this city.

I have listened with a great deal of interest to Dr. Brophy's paper, and you will all be interested possibly to know that we have been doing a great deal in the same way in our country. It is a very small place, yet I do not think we are far behind the times when it comes to matters of this kind. In New Zealand we have one huge society, which we call the New Zealand Dental Association. That Association appointed a committee, and they got out a lot of charts which were distributed among different members of the Association in different centers. These men obtained from the Government the privilege of examining the teeth of the school children in their districts with the same results that you have had here, i. e., about five per cent of the teeth being perfect. We approached our municipal officers and tried to get them to furnish us a ward in each hospital. Every town in New Zealand has a hospital run by the municipal powers. Each member of the Association was willing to devote one-half a day a month to the work. We have been trying to do this for a year or more, but we are in the same position now as when we started. They will not contribute the money to furnish that ward. If this could be done, I think this would be one of the best things that the dental profession ever did on our side of the world. The medical profession will not back us up and that is one of the greatest troubles we have. They do not seem to see the necessity of it.

Words cannot express the feeling that I have had in meeting you all. I have not met one man in Chicago who has not opened his doors to me and told me what he could. I appreciate it from the bottom of my heart.

Dr. W. H. Taggart:

Mr. Chairman, I am very much pleased to be a guest here this evening and I know if this matter in Dr. Brophy's paper was started, I would become as enthusiastic as any of you, and would willingly give a certain proportion of my time to be master of the clinic for a day or whatever length of time was designated to each man. I think that if the prominent men of the profession were chosen to superintend the children's clinic, say for a month each, and let each one choose his subordinates, it might result in some good. I think it would be necessary to have some good man inaugurate this scheme, and not leave it in the hands of such novices that the public would have no confidence in our effort. The public, even if they receive things in a charitable way, expept the services of the best men, and if it became noised about that this dental clinic was in the hands of novices, I don't think it would carry much weight. If they were given to understand that the leading men of the city had this matter under their special supervision, I think some good would come of it. I assure you that if the scheme is inaugurated, I will do the best I can to help it along.

Dr. J. H. Woolley:

Mr. President and members of the Odontological Society,

It is a great pleasure to be present with you this evening and to enjoy with you the splendid hospitality of our friend and host, Dr. Johnson, and to celebrate with him his 25th anniversary of professional life in Chicago. It has been said that this is a material and commercial age, overshadowing the "simple life," the closer heart-to-heart relationships. But I find in our society that commercialism and materialism are replaced by fraternalism and a common interest in the highest ideals and human welfare.

We have just listened to a report of the President, Dr. Brophy, which emphasizes these ideals, and under his leadership we are striving to realize them. Referring again to our confrere and to this happy reunion, may his next twenty-five years be as useful as those of the past have been.

Dr. E. A. Royce:

Mr. Chairman, I have not paid much attention to the subject of the President's address and the efforts that are being made to take care of the school children. The address and the discussion have been a little different from what I expected, but I thought the physicians would receive a rap or two.

I happened to read an article in "Good Health" that I thought perhaps would show us that the physicians are not so much asleep as they might be. The article reads as follows:

"Dr. H. H. Upson, who has been making during the last two years a careful study of the causes of disease of the teeth, in an article in the *Cleveland Medical Journal* for August expresses the opinion that a large proportion of all cases of neurasthenia and mental disease not due to digestive disorders and eye-strain are the result of disease of the teeth. Still further investigation of the subject would doubtless have led the Doctor to the conclusion that disease of the teeth is not a primary but a secondary cause, since disturbed nutrition brought about as the result of high protein feeding and neglect of thorough mastication of the food, and the resulting autointoxication, are the real cause of dental decay."

About the same time, I read an article by Dr. Low, of Buffalo in regard to the systemic treatment for the prevention of decay of teeth—The administration of drugs. Those two papers have led me to think that perhaps the time is coming when the dentist will be a physician or the physician a dentist, or the combination will be made in some way so that we can work together. Perhaps it is better to say that dentistry will become a specialty of medicine, if we can by the administration of drugs change the surroundings of the teeth so as to reduce the tendency to decay. If it has been proven by experiment that the conditions of the general system cause decay, it is time for us to fit ourselves better to treat the general system. If the examination of school children is to be undertaken, must we not, either extend our researches, or our own knowledge to meet the necessity of systemic treatment? Must the education not be such as to force the physicians to recognize that dentistry is a specialty in the healing art? I appreciate fully the necessity of something being done for the children, and if anything is to be done, something deeper and broader than a mere clinic should be undertaken. The public should be educated and the physician that they may recognize defects in the general system which might cause defects in the teeth.

Dr. J. E. Hinkins:

Mr. Chairman, while you gentlemen have been discussing the President's Address which I have enjoyed fully, I have been reminiscencing. About twenty-five years ago, this month, I had the good luck to meet a gentleman who was fairly erect, rosy cheeks, a kind smile, and a fellowship grip. Tonight, I have the same pleasure and meet the same gentleman, but in the past twenty-five years his hair has changed. He has rosy cheeks, the same smile, and a large hump on his back. What is the cause of that? Filling teeth and trying to do something for his fellow man. He has preached hygienic conditions ever since I first knew him, and how many parents do you suppose, Dr. Johnson, that you have convinced of the importance of the children's teeth?

This subject was agitated considerably about fifteen years ago, and I was interested in it at the time. I felt then as I have since, that it was a public necessity that something ought to be done. We canvassed the schools on the south side, and I never got such a setting down in my life as we got before the school board when we asked for the privilege of examining the children's teeth, and doing charitable work. We went over to the stock yards district before a kind of socialistic, or communistic association there. We were going to start a clinic over there, but our ideas and the ideas of the lady in charge were not parallel, and we quit.

I am most heartily in support of any work this Society may do. I feel that individually we are weak, but in union there is strength. If we will put our shoulders to the wheel and keep on pushing, in the course of time, something will have to move.

I want to thank my class-mate, Dr. Johnson, for the good time we have had tonight, and I want to congratulate him on the success he has made as a dentist, and as an American citizen.

Dr. C. S. Case:

Mr. Chairman, this is a subject that I have not given much thought to, but it is very interesting, and very far reaching, if carried out in a practical way. There is one feature that has not been mentioned. All of you have in mind no doubt, the care of the permanent teeth with reference to decay etc.; I have in mind particularly the care of the deciduous teeth with reference to preventing irregularities of the permanent teeth. Physicians are very lax, not only in regard to the subject of decay of the teeth, but they seem to care very little about the care of the deciduous teeth. If parents and school-teachers could be educated concerning these matters, it would be one of the greatest benefits that could possibly arise. It is a very harmful tendency on the part of some dentists as well as some parents and physicians to extract teeth in the deciduous set, especially where the permanent molars are allowed to drift forward, and close up the space. If this subject could be agitated enough to bring about the higher education of the physicians and parents with regard to caring for these teeth, it would be a very great benefit, and if this society could be of influence in that direction as also in the main work, we would certainly accomplish a most needed work.

Dr L. L. Davis:

Mr. Chairman, some eighteen years ago, this subject of examining the teeth of the school children came up. Committees were appointed for the various sides of Chicago by the old Chicago Dental Society, and I remember that Dr. Ottofy probably turned in the most exhaustive report of any on that work. Some twelve years, ago, I endeavored to take part in this work in connection with the College of which I then had charge. If I remember rightly, during the two years I was connected with that school, somewhere between 1800 and and 2000 school children were listed on the books, and received absolutely free dental service in the clinics of the old Northwestern College of Dental Surgery, at Monroe street and Wabash avenue.

This subject is somewhat on the order of the old European form of Government by paternalism, and to some extent that is antagonized in this country, but we see that that thing is growing, more especially in the medical colleges, and in the examination of the eyes of children. If a Board of Education can see importance enough for the care of the eyes of children to order a child sent home until fitted with a pair of glasses, which I have known them to do, the care of the teeth is certainly of as much importance, and even more so far as the general health of the child is concerned. We must demonstrate to the Board of Education the absolute necessity of this kind of work. Then if we can get their sanction, the next thing would be the establishing of dispensaries in various parts of the city. I do not think that we would have the slightest trouble in filling those dispensaries with gratuitous service on the part of the practitioners of Chicago. If we could get that kind of work started, it would mean the education of the parents of this city as nothing else we could do. We have a large foreign element in this city which is ignorant of this subject. I see great results, not only in the education of the laity, but also a pecuniary benefit of the future.

I do want at this time, following so closely upon my own 25th anniversary, to extend my congratulations to Dr. Johnson, and I hope that we will be able to get together at our golden anniversary, in the same kind of a way.

Dr. E. R. Carpenter:

Mr. Chairman, I want to congratulate you, sir, upon this happy meeting. We all congratulate you, and I want to congratulate Dr. Brophy on the timeliness of his paper. I have suspected it for several weeks. Inadvertently, he gave me a hint as to what he might speak about at this time, and not being in a position to gather much data, I have asked two or three of my medical brothers to give me any light they could on this most interesting and important subject. I believe the time is ripe, and that it is our duty to force this question to an issue. Some of the cities in the United States have been awake on this subject for several years.

Two days ago, I asked one of my medical friends to gather notes on this subject and these notes I have from him are the result of some of his last year's work. In 1908 the Health Department began in Chicago the systematic examination of school children for the purpose of finding physical defects. The work was begun late in the year and 45,365 children were examined. These children were above the fourth grade; 13,838 cases of defective teeth were found. In the first six months of 1909, there were 72,061 children examined and of these 26,612 were found to have carious teeth.

These cases are of course only hurriedly inspected and there is no doubt that the careful methods of dentists would discover many more cases in the same number of examinations. These cases are only the ones which show gross defects.

The dentists according to the children often advise against caring for carious first teeth, notwithstanding the great danger of these arteries of infection.

Where defective teeth are found, a note is sent to the child's parents, telling of the need of treatment and it has been found in Chicago that about 17 percent respond by having treatment. In many sections of the city trained nurses assist the medical inspectors by following the cases to their homes and urging treatment.

In New York where much more strenuous effort is made through a larger staff, a response of 89 per cent meets the indications for treatment.

In Philadelphia, recently the city undertook to pay dispensaries and dentists for the cost of material used in the treatment of the poor but they were soon swamped by enormous bills and had to abandon it.

It would seem to me at this time that it is a great privilege this society has of forming a committee of the whole in order to submit individual plans for revision and ultimate adoption whereby a practical method may be reached for correcting this condition.

Dr. A. D. Burne, of Australia:

Mr. Chairman, as an Australian, I would first like to pay my tribute to Dr. Johnson, and congratulate him on this, his 25th anniversary. I have often heard my father say at home, in speaking of Dr. Johnson, that to know him is to love him, although many of us over there have come in contact with him only through his writings.

I would like to pay my tribute to Dr. Brophy for his paper. Some three years ago, at the first Australian Dental Congress, a committee was appointed to investigate regarding the school children's teeth. They have been at work with fairly good results since that time.

Dr. W. V.—B. Ames:

Mr. Chairman, this is certainly a very happy occasion, and in congratulating Dr. Johnson, I want to congratulate myself, that I am still a member of the Odontological Society. I am pleased to be here this evening and to have had an opportunity of hearing Dr. Brophy's paper, and to get at the trend of the times in this direction. It does seem to me that we in Chicago have been a little backward in accomplishing results, and I think New York City had done much more. I happen to know of some little clinics there, where ten or a dozen men got together and they seem to have been doing very good work. In such cities as Rochester, N. Y., Newark, N. J., and Salt Lake City I have happened to know that clinics of this kind were carried on. It would seem to me that this must have an influence on the powers that be, municipally. It seems that the members of the School Board, as well as the Mayor and Commissioner of Health are taking an interest in this matter, and this ought to bring results.

I would be willing to give some time to this, and if the gentlemen present would do some work as cheerfully as I believe they would, it would have an influence on the men who have more time to give, and if we could bring something to pass, in our own private way, I believe it would have a salutary effect in a municipal way and I think it would be a good thing in a pecuniary way for the future dentists. That is a matter worth thinking of.

Dr. C. N. Johnson:

This is a subject of special interest to me. Some years ago in Chicago, the Odontographic Society inaugurated a movement along this line, but there seemed at that time to be little encouragement and so there was not much of a permanent character accomplished. It seems to me that this Society is in a position now to take a firmer hold of the people of Chicago in relation to this subject of the care of the school children's teeth than any other body of men.

I am exceedingly pleased with the presentation of this subject by the President. I believe great good will come from it. Our Society can confer no more lasting benefit to the race than by carrying to a successful issue a movement of this kind.

An ideal arrangement in regard to the care of children, so far as the teeth are concerned, has been carried out in the City of Strasburg, Germany. The municipal authorities make it compulsory to have the teeth of the school children properly examined. A duplicate examination slip is made out, one of the slips being sent to the parents, with the statement that the defective teeth should be attended to. Those who are not in a financial condition to have the teeth cared for are referred to the municipal dentists. The dentists employed in this way are employed by the municipality. That means a great deal for the future manhood and womanhood of the children growing up in the community. That is a kind of paternalism that we want in this country. Dr. Davis has referred to the very patent fact that paternalism is somewhat frowned upon here. Anything that is compulsory, regarding the health of the individual is resented by certain people. We must educate the people to their own interests before we can accomplish much. The first people to get at are the City Council, the Mayor, Health Commissioners and the School Board. I believe that a movement inaugurated by this Society will not be ignored by those people. It has been stated that a financial benefit will probably come to the dentists who succeed us, as a result of this movement, but better than anything of the kind is the development of the better manhood and womanhood in the coming generation.

I believe that this Society made its chief reputation by reason of the monograph that was published on, "The Management of Pulpless Teeth." We now have an opportunity to make a record which will last as long as the name of the Odontological Society exists.

I want to express my appreciation at the presence of the members here. I accept it as a great compliment, that almost the entire membership has turned out to the meeting. It has been a special privilege for Mrs. Johnson and myself to have you here, and I simply re-echo the sentiments already expressed, that I hope twenty-five years from now we will meet together again.

Dr. Brophy (closing the discussion):

The very feeble effort I made to bring this subject before you, I find has touched a popular cord, and that is gratifying to me. When I was informed that I was to deliver an address, I was at once put in trouble. I could not think of anything that I could bring up that would be worth the loss of time you would have to submit to. It finally dawned upon me that this would be a good thing to do. I remarked in parenthesis, in my paper that I had a talk with Mayor Busse, and he said he would do anything in his power to assist in this work. Dr. Evans was out of the city. The Mayor would certainly have been here had he not been called away by an engagement he made sometime prior to my seeing him. We have the co-operation of Mayor Busse, and I believe of Commissioner Evans and I think we will have the assistance of Mrs. Young, the Superintendent of Schools. I do not think we ought to go any further than that now. If we get into the City Council at present, we may be getting into deep water. If the Mayor would bring in some of his friends who are willing to further the interests of the city, nothing could be better than that. Then we would be able to bring the matter before the Council in a way that it would be adopted. There certainly could be no benefit accruing to the members of the Society in a pecuniary way from the work they do, and so it will be only from the highest motives to do something for the benefit of the suffering children.

I do not think I have any information tonight as to the line of action that should be pursued, only to say that if the members of this Society agree in attempting to do something, each member could take the matter under advisement, and make notes of the conclusions he may reach. In the meantime we will endeavor to see Commissioner Evans, and after we have formulated some plan we can call him into our conference, and he will assist us with his fertile mind and business methods.

I have some notes here sent by Dr. Bentley and I want to express my appreciation of his kindness. (Reading.)

I have no fixed ideas on the subject, and do not know as much about it as many of you who have studied it more than I have, but I do think that if we do nothing else next year, as stated by Dr. Reid, than to carry out this plan, we will have done the best thing that the Society ever did.

If it meets with the approval of the Society I move that we form a Committee of the Whole to begin this work, and that we get from the members suggestions as to just what we would undertake first. I would be glad to put my own notions aside, and accept others.

I want to thank you all for the very kind consideration you have given my paper, and to say that it is not original, but just something that has not been done. I believe we ought to do it, and we can do it, and I think we will do it.

THE NORTHERN ILLINOIS DENTAL SOCIETY, ELGIN, OCT. 27 AND 28, 1909.

Discussion of the paper by Dr. Rudolph Beck on "A New and Successful Treatment for Alveolar Abscesses and Sinuses of the Jaws."

DR. GEORGE W. COOK, Chicago:

Mr. President and Members of the Northern Illinois Dental Society: It is with more than passing interest that I have read Dr. Beck's paper on what he is pleased to call "A New and Successful Treatment of Chronic Alveolar Abscesses and Sinuses of the Jaw." Dr. Beck has done much to bring this question to the notice of the dental profession. I can quite agree with the author on the treatment of abscess sinuses by the method under discussion. It was my good fortune to be present at a meeting of a dental society where Dr. Beck presented a paper on this subject, and even prior to that time I was familiar with the work that he was trying to do in the establishment of a practical technique for the injection of a bismuth preparation into sinuses and pyorrhea pockets. I can hail with much certainty the value of this paper in establishing a broader therapeutics, for what a few years ago was nothing but surgical; and surgery in any instance should be the last resort. If the therapeutics in dentistry amount to anything it must be recognized as an agent to assist nature in eradicating from her living cellular structure disease processes, without removing the continuity of the living structure itself; and that is what this treatment is destined to do.

As for chronic alveolar abscesses, it will depend very largely upon the location and the extent of the disease process. If there is considerable loss of tissue, with or without an external opening, it is of unquestionable value, but where there is a slight irritation and not a very extensive destruction of tissue, I see no special advantage in the use of the paste. Where there are large pockets with considerable loss of tissue, and especially a sufficient amount as to make uneven surfaces or irregularities in the cavity walls, the paste is of great value. However, its greatest value lies not so much in the antiseptic properties of the subnitrate of bismuth, as it acts in holding the walls of the cavity from collapsing, or rather the soft parts folding down on top of each other in such a way as to harbor or retain within these small folds bacteria and serous exudates, which necessarily prevent granulation.

Bismuth as an antiseptic agent is not looked upon as anything more than for the absorption of moisture or serum, which is of the greatest importance for continued infection in tissue and especially where there are cavities or sinuses in which the flow of the secretions can assist in the continued survival of bacterial life in the part. More than fifteen years ago various preparations, and especially the subnitrate of bismuth, were substituted in surgery for iodoform. I can quote from a well known author: "The subnitrate of bismuth has been advised as an antiseptic astringent powder to replace iodoform. It is true it is devoid of the disagreeable odor but it is not a harmless remedy, as was first supposed, for several cases of bismuth poisoning have been recorded from its surgical use. Like iodoform, its value depends not so much upon its germicidal action as upon its absorption of the fluid which renders the surfaces less suitable for the growth of bacteria."

In a paper read before the Alumni Association of the University of Iowa last February, the essayist advised this paste in the treatment of pyorrhea alveolaris, with the exception that he recommend bismuth and paraffin in the treatment of pyorrhea; but in the sinuses he recommended the vaseline and bismuth. From my experience I would reverse this, to use the paraffin instead of the vaseline in sinuses, and especially where there are large cavities; for the simple reason that the mechanical extension of the cavity walls, or in other words, the pressure created by a more solid substance, like that of paraffin, is of greater value in many instances than that of the soft or mushy-like appearance that comes with the soft vaseline preparation. I have almost entirely discarded the use of bismuth in the vaseline or the paraffin preparations. I have substituted chinosol for the bismuth preparation with valuable results; with a ten to fifteen per cent of chinosol in the paraffin or vaseline, as conditions may demand, the antiseptic properties of chinosol are so much greater than that of the bismuth preparation. You get valuable results in many cases that you could not otherwise expect, and the chinosol is as little irritating, or I might say less irritating, than the subnitrate of bismuth.

In conclusion I want to say, first, I believe that the paraffin is better in the sinuses, and especially in the larger sinuses, than the vaseline. Second, I want to say that I prefer the chinosol preparation to that of the bismuth in the majority of cases; it is far superior as an antiseptic agent; it has less liability of being absorbed in the general circulation and has less toxic effects following its use. Injections made of bismuth subnitrate with some people is of serious importance. Bismuth injected in this way is liable to have a long continued absorption, and where the pockets or sinuses are filled with this preparation the absorption goes on very slowly and very surely; it acts as all metals, that it has a selective affinity for certain cellular structures in the body and it accumulates in certain tissue, quite like that of iodin, and continues to be thrown off into the body and effecting certain circulatory or nervous centers.

But with the whole situation of therapeutics before us, we must accept this treatment as one of the important therapeutic agents in dentistry and I want to congratulate Dr. Beck and the Society on having had this subject again brought to our notice in the modest and forceful manner in which we have had it today.

Dr. Arthur D. Black, Chicago:

This paper by Dr. Beck and the preceding one by Dr. Moorehead serve to call attention to the advantages of a close relationship between members of the medical and dental professions. The closer the contact between the men of the two professions and the broader our knowledge of general medicine, the more often will we find, in the results of their work, new ideas and new methods, which will be of benefit to our patients. We should endeavor to keep in close touch with the best medical men we know, and we should at the same time make every effort to broaden our own knowledge of both dentistry and general medicine that the exchange of ideas may be of value to the practitioners of medicine as well as to ourselves. There is nothing that will do more to improve the standing of dentistry as a profession than the establishment in this way of a higher regard for us and our work by medical men.

Dr. Beck is to be congratulated upon the work of investigation which he has done in the use of this paste. I am inclined to the belief that he has allowed his interest and enthusiasm to carry him too far in its use, or at least I think his use of it more general than should be recommended for regular practice. We ought with this as with every remedy or method of treatment to determine as closely as possible the indications for its use and its limitations. There should be a more exact statement of the pathological conditions in which the injection of the paste is indicated. The essayist states that he would use it in the treatment of all chronic alveolar abscesses; if a cure does not result, then a search is made for a foreign body, etc., that may be the cause of the failure. That is not, in my opinion, the proper method of procedure. He first states that he would use the paste in all cases, and then acknowledges that it will fail in a certain class. Would it not be more scientific to endeavor, at least, to find out first the existing pathological condition, and know beforehand whether the paste or some other treatment is indicated. It is usually a simple matter to determine the condition of the end of the root and of the bone in the region by the use of a sharp steel probe, often supplemented by the X-ray. Certainly in many cases of chronic alveolar abscess it will be easily discovered that enough of the peridental membrane has been destroyed to expose a considerable area of the end of the root; so much that we can not hope for a cure while that denuded root end remains as a foreign body within the surrounding tissues. I wish to urge a very careful examination and an exact diagnosis whenever possible, and the use of the paste only in cases in which it is indicated, in order that there may be the largest possible percentage of successes with it, and that unnecessary failure may be avoided.

The essayist's statements relative to the use of the paste in antrum cases are not quite clear. He states that in cases of long continued degeneration of the mucous membrane or involvement of the underlying bone, a cure can not be expected, but it might be inferred that he treats antrum cases as he does chronic alveolar abscesses, by injecting all of them, and leaves the discovery of the real condition in the bad cases until after the paste has failed to effect a cure. Again I would prefer to go more carefully into the history and symptoms first, and study the indications for treatment.

One definite indication for the use of the paste exists in those cases in which there is a cavity present within the tissues, the cause of the pathological condition having been removed. For example, in cavities remaining after the removal of cysts, sequestra, or resulting from any operation in which considerable tissue is removed and yet the cavity is such that the paste may be retained. In such cases the paste affords a simple and easy method of filling the cavity completely, preventing the ingress of foreign substances or fluids, preventing the formation of unhealthy granulation tissue, and at the same time affording an antiseptic dressing.

The injection of the paste for diagnostic purposes with the X-ray is, I think, of greater value in other parts of the body than in pathological conditions of the jaws. Most of the sinuses with which we have to deal are comparatively short and can be easily followed to their source with proper probes.

My chief criticism of Dr. Beck's paper is that he has not given us more definite limitations to the indications for the use of the paste, in order that we may not meet with disappointments; whereas, with better discrimination in the selection of cases the percentage of success would be much greater.

A criticism might properly be applied to the dental profession as a whole in its treatment of many classes of cases. It is too frequently noticed in our literature that a certain drug or method is advocated as a proper treatment for a whole class of cases, as for example someone professes to cure all chronic alveolar abscesses by phenol cauterization, some one else accomplishes the same result in all cases by some other method, some one else by still another, and none of them seem to pay any attention to the difference in the existing conditions. If it is a chronic abscess, it makes no difference whether it is simply a sinus passing directly from root apex through the tissues, or a large area of bone involved by caries, or a cavity of absorption in the bone with the apical end of the root denuded, or a case complicated with necrosis; if it is a chronic abscess, it gets the chronic abscess treatment. If the treatment fails, then some other chronic abscess treatment is tried, then possibly another, until finally the patient is sent or goes to some one else.

There is little difference between this method and the way telephones are repaired in Chicago. The ordinary repair man does not endeavor to find out what is wrong with a telephone when he is sent to fix it. He is furnished with a list of fourteen things to do in the order that he must do them. The first thing is the one that, as they have found by experience, is most often wrong; the tightening of certain screws. He tightens them and then tries the 'phone. If it doesn't work he tries thing number two, and then number three, and so on until he hits the thing that is wrong. If he goes through his list of fourteen things and fails, they send out a special repair man who can make a diagnosis. The ordinary repair men are not expected to use their brains at all, the thinking is all done for them.

If we, as dentists, ever become really professional men, we must learn to think a little. We must learn to think while we have a patient in the chair under examination. We must read more, and think while we read; learn to pick out in our reading the things that we should remember. We should learn to carry these thoughts with us to the chair and bring them before us as we make examinations. Whenever we examine a case, we should have in mind every different condition that might be present and the symptoms that would distinguish each from the other. We should find definite symptoms of a single condition, or we should, in the examination, exclude one condition, then another, and another, until we arrive at an accurate diagnosis. When this has been done, the exact treatment is usually indicated.

IOWA STATE DENTAL SOCIETY, MEETING AT DES MOINES, MAY, 1909.

REPORT OF COMMITTEE ON STATE INSTITUTIONS.

DR. E. P. HAZEN:

To the Officers and Members of the Iowa State Dental Society:

We, your committee on State Institutions, beg leave to make the following report:

We find that the Honorable State Board of Control have full power in the matter of appointing dentists to look after the necessities of the unfortunate inmates of the different state institutions. We, your committee, met the Honorable Board of Control by appointment the morning of January 22d, and find that they see or know the necessity of dental supervision over the mouths of the inmates of the different state institutions, especially Glenwood, Eldora, Mitchellville, Davenport and Council Bluffs. Hon. G. S. Robinson of the Board is especially interested, and says the condition of the mouths of many of the inmates of the different institutions is deplorable, and that their general health is impaired by the condition of the oral cavity. The State Board of Control claims that with all the advantages that they have instituted for the general welfare of the inmates since they have had control, they have reduced the expense of running the state institutions, and that they are now giving all the relief possible with the means at hand. What they most need is a larger appropriation, a certain part of it to be set aside for the purpose of paying a competent dentist to relieve the condition of the inmates. Your committee set about to see what could be done in regard to a special appropriation. We called on the Chairman of the Legislative Committee on appropriations, and received his promise to do all in his power. We did not see the Chairman of the Senate Committee on Appropriations, as he was not in when we called. Owing to the criticism (from all over the country) of the Board of Control, we concluded to let matters drop for the present, feeling that the Honorable Board would do, and are doing all in their power, and with the limited means they have on hand, have done much to improve the conditions in the different state institutions.

We would suggest that a committee of dentists be appointed to visit these institutions, and, if possible, persuade the Superintendents of such institutions to include a sufficient amount to afford dental relief for the inmates in their next appropriation petition to the Legislature. Then the necessity for appointment of Registered Ethical Dental Surgeons in such institutions will be apparent to the "powers that be."

DR. HAZEN (after reading report):

I want to say right here that I think the board was doing everything possible for them to do with their means. Of course we all know that in these institutions some inmates have friends who have money and are either sent out of the institution or a competent dentist called in to do their work, but what this board is trying to do is to give relief to the unfortunate inmates that have no financial support from friends or themselves in any way whatever. They are the ones that are neglected and especially among the children and that is where the work is needed. Those that have financial support from friends or of their own can send out and get a competent dentist but for the poor it is certainly deplorable the condition of these institutions.

DISCUSSION OF THE PAPER BY DR. C. R. BAKER ON "SOME EXPERIMENTS TO DETERMINE THE PHYSICAL PROPERTIES OF CAST GOLD."

DR. BROWNLIE:

I believe that Dr. Baker is getting at the meat of the nut. I have been doing this casting from the very time that I could first get a machine. I am pretty enthusiastic about it. I have not thrown my pluggers away, don't intend to. I have tried casting hot; I have tried casting cold and I have tried casting red hot. I have tried everything I read and I really could not get my bearings. I would get good results every way and get bad results every way but I finally came to the conclusion that I had to cast them so hot that I could see it red through the sprue hole, but I believe Dr. Baker has given me some points here that I can take home with me and profit by them. As he said the investment matter opens up a great field for us. That is a question that has annoyed me, what investment to use. I have tried nearly everything and now I am using the clev-dent red investment. According to Dr. Baker's experiments the Standard Investment seems to give a very good result. Don't you think better than the others, Dr. Baker?

Dr. Baker:

These are not all my casts. I have not used the standard investment myself but these casts are just as they came to me.

Voice:

About ten days ago a dental supply company sent me some Standard investment and a Suction Machine to try it. I had been using another machine but I was wasting a good deal of time. Since then I have not made a miss with the thing. They were cast hot, Dr. Baker, all of them, just as hot as I could get them. And so there is a problem that will have to be worked out. I believe we are getting on the right track if we can get somebody who has the time and the means to do it. It is very hard for a busy man to go into the details of these things and it certainly has to be worked out in detail. I want to say that I thank Dr. Baker very much for having gone into this subject and bringing it to our attention.

Dr. Woodbury:

Dr. Baker and the Iowa State Dental Society are both to be congratulated upon this paper. This is a subject that we are all interested in and I as much as any one. It seems to me that the specific gravity that he has shown is not of as much importance as the amount of the flow. Any time that we have a specific gravity of 19 or over, we have all we need and the experiments along this line should be made as regards the flow of gold under pressure. It seems to me that cast gold is going to ffow more under pressure, than malleted gold, on account of the lack of temper in it. I believe some experiments have been made along that line but have not been brought to a conclusive end. So it seems to me that, instead of looking for specific gravity at any time, because a specific gravity of 19 is sufficient, we ought to be making tests for the flow of cast gold under pressure. We have all been casting, or the greater part of us, casting into a hot mold and it is my experience that probably nine out of ten of these castings are a little too large for the cavity, and they have got to be forced to get them in. I have thought that was because we cast under too much pressure and it has been my idea to cast with as low a pressure as possible, using only three or four pounds altogether, thinking that the pressure of the cavity had expanded the mold; but if we can cast into a cold mold and get a smaller casting, probably the trouble is in the expansion of the mold on account of heat. It is something that must be looked into and something that requires some study.

DR CONZETT:

I did not expect to speak on this subject but Dr. Woodbury has touched on a point that has set the globules of my brain in motion and I want to congratulate Dr. Baker, and the society more than Dr. Baker perhaps, upon this paper because it is along the right lines. There is no question about that. I want to differ a very little with my very good friend, Dr. Woodbury; it is very rarely that I do differ with him and perhaps I will do so now to my sorrow. I believe it does make a difference concerning the specific gravity, even in a cast gold inlay. I did not suppose it would be possible to get a specific gravity of 19.16, which is the specific gravity the chemists give us of gold, and we are evidently upon new ground. Dr. Baker has said that there are scientific facts here with which we are not acquainted and I know this to be a fact, that while it is undoubtedly true that the malleted gold filling is a very much harder filling, that is we supposed it was a very much harder filling because of the temper it receives in the malleting, because we know gold tempers by malleting and by melting it loses its temper and becomes soft, yet I have been observing this to be a fact for some time in the use of inlays, and heretofore I have been unable to explain it, perhaps the facts Dr. Baker has brought out will be an explanation of it somewhat, that is that we have a greater specific gravity; it seems that a larger mass of gold has been forced into a smaller space than heretofore. I do not know whether that will mean that we will get a harder gold but I do not see why it will not get a harder gold than we have had by other means of casting and by malleting under straight pressure. But this is a fact, as to which I believe that any man will agree with me, and that is that when we get an inlay cast by the pressure process and we find it necessary to grind that inlay we find it very much harder to grind than ordinary gold; that is my experience and I have wondered at it it to some extent because I have been under the impression that the malleted gold filling was harder than the cast gold filling. Yet it has been my experience that the cast fillings have been more resistant than the ordinary gold filling and I believe I get as much density in a gold filling as the average man. Now these things have not been explained and I believe the experiments which Dr. Baker has given us has opened up for us a new field of research and perhaps will give us some new data in reference to the physical characteristics of gold.

DR MONFORT:

Last November I believe it was we met in Oskaloosa in the Southeastern meeting and there in conversation with Dr. Baker he called my attention to Dr. Taggart's article. Since then I have been using the cold mold nearly exclusively in all inlays and I have had the same experience which Dr. Baker has had in having my inlays go to place better. At that meeting I had a paper and in that paper I said that I had had trouble occasionally with my investment cracking. Since then I have been using a centrifugal machine, and melting my gold away from my investment, using a cool investment and I have not had one cracked investment since. Why, I do not know. I used the same investment, mixed in the same way and everything, that I did before, but I have not had a check, not a crack. In regard to the finishing of the inlay. As Dr. Conzett has said, when he grinds an inlay he finds it harder. I find that it takes me longer to finish a gold inlay than it does a malleted filling. Perhaps I do not mallet as hard as some of them; I mallet pretty hard sometimes, but I find it takes me quite a little longer to finish an inlay than it does a gold filling.

DR. PHERRIN:

I was very much pleased with Dr. Baker's paper and although I am not able to judge of the value of it at the present time I believe there is much in it that will keep us thinking for some time to come.

And not only that. I have just been thinking that we may be called upon to offer an apology to our friend M. L. Rhein, of New York. Dr. Conzett, do you remember the specific gravity he got in a filling?

Dr Conzett:

I never believed it and don't yet; it was twenty something; I do not remember exactly.

Dr. Pherrin:

Well the average gold filling is something like 14 I think, while a specific gravity of 18 has been attained and I think a little above 18. In all the experiments that I know of no specific gravity of 19.16 has been reached, but if Dr. Baker says this is true I will take it. But it opens up a thought that we may be obliged to apologize to Dr. M. L. Rhein after a while for he may have some method of malleting to get that density.

Dr Conzett:

I know Dr. Wedelstaedt could not get that specific gravity with a ten pound sledge hammer.

Dr. Pherrin:

I did not know about that experiment but I don't know but he has found out something that Dr. Wedelstaedt has not known about. Dr. Wedelstaedt is a man that studies things very closely but at the same time I believe that there is no human being but what may fail sometimes. But this opens up a field which gives us ample food for thought and I hope that it will be thought out by some member of our society, by Dr. Baker himself, or some member of our society. I think it was a very interesting paper.

Dr. Baker:

You were speaking about the specific gravity of gold. This is in Dr. Taggart's article, "Dr. McKellops got a specific gravity of 17, Darby and Estoby of New York secured a density of about 16 and Dr. Black dropped to 12."

Dr Conzett:

That is hand pressure.

Dr. Baker:

"Dr. McKellops packed gold harder than any man has ever packed it before and he never got a higher specific gravity than that," still reading from the Taggart article.

Dr Conzett:

I think Dr. Black got over 18 or 19. Dr. McKellops got the highest specific gravity by hand pressure and I think that is what it means.

Dr. Baker:

This is Dr. Taggart's article.

Dr. F. E. Roach, Chicago:

This subject is indeed a very interesting one to me and we have every evidence that it is to everyone here. This method of filling teeth with inlays is new. It is new to us all. It is new to Dr. Taggart. Dr. Taggart, I presume, is probably as much at sea on many phases of this question as many of us. While he has given the better part of his life to his experiments, he has not eliminated all chance of failure. He is a very careful observer, who sees into things and reasons out in his own mind why they are thus and so but does not make tabulated data and for that reason we are unfortunate in having to deal with this method of filling teeth without a full knowledge of the problems involved. But such men as Dr. Baker and others who are taking up this line of work and experimenting with it will give to us the facts in the matter. How long was it before we knew in a scientific way about amalgam, about our alloys? How long was it before we knew about the handling in a scientific way of foil filling? And so it has been with a good many other things. Personally I want to congratulate the society on the presentation of these figures by Dr. Baker. They mean a great deal to us. We will hear one man say he gets good results in one way and another man in another way and we are all having our successes and I think we will all admit that we are having our failures and we don't know why it is that we get such varying results with apparently the same technique and the use of practically the same materials. There is a reason for it. If our technique is right, if we are doing this work as it should be our results should be uniform. When there has been a failure there has been a fault in our technique somewhere but we are not sufficiently versed in the causes of failure to know wherein we fail. So that we are fortunate in having such a man as Dr. Baker and other men in this work to give us these figures, I don't know as it is worth while for me to go into this subject any farther. There are a good many points that I might dwell upon in casting metals, in the casting of inlays for instance, but I think the society would probably be wearied by any farther discussion on my part.

Dr. Baker:

There are only one or two points. Most of us had the idea that a perfect inlay fitted into the cavity tight, one that we had to pound into place and get down there by force. There is where we have made a mistake I think. We need an inlay that will go into its seat and set in its bed easily and nicely without any cement. The cement is going to take enough of the space. It was spoken about the expansion of the mold under a high pressure. I do not think our investing material will give very much to pressure after it has been thoroughly heated to the high temperature to which we must put it in order to burn out the wax and all refuse. But if it did I think it would give enough so that it would be broken apart. I know the least crack will let the gold through, and thus ruin the inlay. Here is one point that Dr. Taggart makes. If you want a harder gold alloy with platinum or something to bring it to a higher grade. We can make the gold in that way just as hard as we want but we must keep down to a certain point so that we have enough of a burnishing, or giving property, under a burnisher, to see that our margins are still perfect and too, I think that the surface of the gold is the main point where the hardness is needed, and I have found by taking a burnisher, an engine burnisher, or an old plug finishing bur that has worked down almost smooth, you get that annealing property in the finish of the surface of your gold in the inlay that makes it harder. It will stand the wear and tear of mastication better; it will not wear down as pure gold will, even when melted or cast.

Dr Conzett:

That is a tempering quality.

Dr. Baker:

I should say the tempering quality. One gentlemen, Dr. Pherrin I believe, speaking of these figures as to specific gravity, says he would believe them if I said so. I want you to thoroughly understand that these are not my figures and I do not stand back of them; but I wrote to the State University saying, "You have given me some figures that are rather peculiar. Will your department stand back of them?" They replied "yes," the professor saying, "I went over these figures and over these experiments with the one that made them. I did not believe it could be possible and I found them to be correct so far as I tested them." So you see the physics department of the State University stands back of these specific gravity figures.

DISCUSSION OF THE PAPER BY DR. J. B. PHERRIN "ANOTHER MEDICINAL AID IN PROPHYLAXIS," PUBLISHED IN THE OCTOBER NUMBER OF THE DENTAL REVIEW.

DR. WOODBURY:

I am unable to say anything in regard to this paper or the treatment because I am not familiar with it. I did not know what the subject of the paper was until Saturday when I received through the mail from Dr. Pherrin a short synopsis of what was in the paper. I know the value of persistent antiseptics in these cases and have used the subnitrrate of bismuth in four or five cases, in two with good success and two others apparently with no beneficial results. But what the result would be with stearate of zinc I am unable to say because I have had no experience with it and for that reason am not able to make any discussion on the paper.

DR. DE FORD:

Dr. Pherrin did not take me into his confidence in regard to this matter and I wish he had sent me some of that material several months ago; I might have tried it out and I would have known more about it. But I received a letter from him about Saturday stating the nature of his paper and of course I know nothing about it whatever. I do not see though why it should not be very excellent. The bismuth treatment has proven successful; I do not know why this should be any less successful. There have been some deaths from the use of bismuth paste. I do not know that this would be poisonous in its nature. It is necessary in the use of bismuth that it be absolutely pure because arsenic is one of the ingredients and you know where arsenic is used what it does when it gets to the gums and if you inject arsenic into a cavity you will get into trouble. Zinc is one of the best things we have; it is a disinfectant and caustic; it would have to be used with caution and I think it has a place. I hope to hear more of the results next year and if it is a good thing why of course we want to place it in the dental pharmacopoeia and use it. I want to thank Dr. Pherrin for thinking this out and giving us an opportunity to experiment and satisfy ourselves as to the value of this drug.

DR. WOODBURY:

Just one word more; I think Dr. Pherrin has made an error in the title of his paper and that his paper should read, "Stearate of Zinc in the Treatment of Pyorrhea Alveolaris." I think he has used the word "Prophylaxis" when he should have used the word "Pyorrhea," because we use prophylaxis in many cases where there is no infection simply to produce a condition of cleanliness and where we have that condition I do not believe in the use of any drug whatever. I think if we produce a condition of cleanliness and the patient collaborates with us in caring for himself that is the best we can do. But where we have an infection from any cause and in the treatment of pyorrhea we always have an infection then I think drugs are beneficial and must be used to produce a cure. For this reason I think the title of this paper should be changed to read "in pyorrhea" instead of "in prophylaxis."

DR. WORK:

I would like to have Dr. Pherrin answer what would be the objection to mixing this injection similar to the way we mix the bismuth paste with the white wax and paraffin instead of vaseline. It would hold it in position better if there were some harder substance incorporated in it.

DR. HARNED:

I have not had the opportunity to experiment extensively with the subnitrate paste in necrosis of bony tissues but what I have had I must say I have not found it up to my expectations. It has worked better for me in pockets around roots of teeth and in soft tissues, than in the bony sinuses of the head; in abscessed pockets in the bone itself caused by abscessed teeth it has proved very satisfactory. Now I have a great deal more confidence in the zinc preparations where it is in contact with the cementum of the tooth structure or where pockets exist around the teeth and in pyorrhea alveolaris. Zinc has been used for a long time, and those who have used it to any great extent in the treatment of pyorrhea or inflammatory conditions of the gums, as well as of the throat and other places where we use chlorid of zinc, find that it gives excellent results. I understand that it was a physician, an M. D. who first discovered this and used it in connection with abscesses of the soft tissues and hip joint disease and cases of that nature where there were large pockets with long sinuses occurring in the soft tissues. I feel sure that if Dr. Pherrin's zinc preparation is mixed up with the white wax or paraffine that it will give better results than the subnitrate of bismuth. That is simply my opinion in the matter.

Dr. Warren:

What is prophylaxis? It is not the curing of pyorrhea by a long shot! That comes long before that. This very measure we were discussing this morning in reference to the ligislature is prophylaxis. It is preventing trouble, whether it be in the gums, the teeth or anywhere else; nothing else is prophylaxis. What is our duty as a profession? It is simply to educate the people so that they will take care of their own teeth and prevent this trouble and Dr. Cooke struck a very beautiful note this morning when he said we should be conscientious; that should be the spirit of the Iowa State Dental Society. There is only one ingredient that makes a good operator or dentist,—the ingredient of conscience. Incorporate that in our work and we will be good operators. I don't care how poor a mechanic a man is; he will be a good dentist if he have conscience. And what is our duty as conscientious practitioners and dentists? It is to impress the gospel of prophylaxis on the people, on every patient who comes to your chair on the school; every school should be given a talk on prophylaxis by some dental practitioner some time during the year. It can be done very easily. Those books there from the National Meeting I criticise. Why? Because they are too long. They were too long two years ago when they had thirty-nine pages and they are still too long; the shorter the better. Did you ever think how many ignorant illiterate men go through Masonry? I am not a Mason but I know many of them and I know that they have to go through and learn the work. How do they learn it? By word of mouth. They don't learn it any other way. That is the way we are to teach prophylaxis. Teach it to the people by word of mouth—every patient who comes in I say. Many people we see who do not brush their teeth on the lingual surfaces, the lower molars. They will be taking very good care of them otherwise and they may be very careful people; you can't find a grease spot on the floor in their houses they are so fastidious but their teeth are filthy. Some of these fastidious people will not clean their teeth properly and it is our duty to instruct them in it. What would we do if the learned, the good and the scientific would not instruct us, would hold themselves aloof in their knowledge, so to speak, and not pay any attention to us! Therefore isn't it our duty, if there are some who know less than we do on this point to instruct them? Dr. De Ford has told a great deal about this B.B.B. It is the one thing that will preserve the teeth—Brush Before Breakfast. I have seen it do it and I know it will preserve the teeth. See that the patient brushes his teeth correctly. Many patients brush their teeth incorrectly. You ask them in brushing their teeth if their gums are spongy and you will find they are not brushing their gums. Therefore get after the people and see that they do it. Every patient who comes in, inquire of him—as I have of hundreds of patients—"Did your dentist tell you how to do this? Did he instruct you in the care of your teeth?" "Not a word!" "Beautiful work in your mouth—all going to the dogs! How do you expect to save your teeth if you don't take care of them yourself?"

Dr. De Ford:

Just another word: I attended a Nebraska meeting a year ago and Dr. Horace Warren had a paper on this subject. He talked about an hour and every once in a while he would mention "B. B. B.," and then he would talk for a while and would tell what it would do. At the conclusion of the hour he had some one come in and take his seat in a chair at the front and Dr. Warren explained that this was a patient that had come from Missouri Valley. Every man formed in line and he explained that a few months before his case was so bad that you could press his gums and the pus would drip out on the floor. He says "B. B. B. is what did the business!" After we all looked at the case and saw how beautiful a case it was, how solid the teeth had grown and how firm and beautiful the gums, Dr. Warren told us that the remedy, B. B. B., was "brush before breakfast."

Dr. Pherrin:

Gentlemen: The title of this paper may or may not be exactly correct when we come down to the real technical meaning or the derivation of the word prophylaxis. I read somewhere just a short time ago that the terms used in dentistry were many of them misnomers.

Dr. Work:

Don't believe everything you read!

Dr. Pherrin:

No, and not everything I see. A few years ago I was corrected by my good friend Burton Lee Thorpe, who is with us at the present time on the point of using the term cataphoric anesthesia instead of pressure anesthesia. I talked with some of you at the time and I have talked to Dr. Thorpe since. I never have fully settled with him until we met this time. Cataphoresis meant something different from a galvanic current. Cataphoresis was known before the current of electricity was known. But the term of prophylaxis means more to me than treatment to prevent disease. I think that that should cover the entire field where we use the terms cleaning the teeth, scaling the teeth, the massaging of the gums and all treatment used to prevent those diseases about the teeth; to prevent pyorrhea. I do not like the term scaling the teeth; it reminds me of being hauled into the dry dock and having the barnacles raked off; it is not right; I think there is a more genteel term to be used than "scaling the teeth." Now then one thought in regard to scaling teeth: The cleaning of those roots, the absolute mechinacal cleaning of the roots is the first thing. All the medicament you may use, all the subnitrate of bismuth, all the stearate of zinc, or whatever you wish to use, is of no avail unless the mechanical irritation is removed. There is a reason for many failures after this medicament has been used. I said that I claimed the superiority of stearate of zinc over that of subnitrate of bismuth for this reason; that subnitrate of bismuth itself is a very inert drug, practically as inert as chalk. There is a chemical action when there is acid present in the mouth when chalk is taken into the mouth. It neutralizes the acid in the mouth. Subnitrate of bismuth is acted upon faintly by hydrochloric acid in the mouth or whatever acid is present. With stearate of zinc there is a lively chemical action set up there by the hydrogen sulphid in the mouth or whatever acid is generated there in the old broken down tissues and it is my theory that you have there a continual formation of chlorid of zinc acting as an astringent upon these gums.

VOICE:

What proportion of the zinc do you use?

DR. PHERRIN:

I do not know; I have never weighed it out but I should judge I use about half an ounce, the stearate of zinc half an ounce and white vaseline. I think it works as nice as anything can. I intended to bring my syringe that is filled with it. I also wanted to show you the syringe that I use. The sub Q syringe is a mighty nice thing to have in your office. You can see just what you are doing.

Voice:

How often do you make the application?

Dr. Pherrin:

Well, I go on with the treatment until I am practically certain that I have the pocket thoroughly clean.

Dr. Woodbury:

Twice a week?

Dr. Pherrin:

Oh, you mean the stearate of zinc! I seldom fill it out more than once. I usually find that I have gotten the pocket thoroughly clean by that time, that one application will render the gum normal. Now, whether it is the cleaning of the pocket or the stearate of zinc I do not know. I give the thorough cleansing of the pocket a very large amount of the credit, but the only reason why we use the paraffine and wax, the only thing we use it for at all is to in some way seal in your medicament and let it get in its work. We have used chlorid of zinc for many, many years upon inflamed mucous membrane, but it is so diluted in the secretions of the mouth that we get no effect from it. If we could hold it on the gums we would get some effect. The idea is that you have something held in that pocket that is persistent. It is a difficult matter to hold stearate of zinc in there in any other way. I claim no credit mind you in regard to the use of this. I give that entirely to Dr. A. H. Andrews who suggested it first. As to the amount to use, I work about a half an ounce of the stearate of zinc into an ounce bottle of white vaseline. I find that that amount works very nicely.

Voice:

What is the name of that syringe?

Dr. Pherrin:

Well, it is a large syringe; it has a name but I cannot call it just now. It is a metal plunger syringe. I drop the syringe into a glass of water; bring the water very nearly to the boiling point first. By the time I am ready to use it of course the water has cooled in the glass and the tissues tolerate it at almost any degree below the boiling point and you will find that the vaseline will run as easily as lubricating oil from an oil can. You can fill the pockets with it and use it full although it takes considerable force to force it out through the top.

VOICE:

Is that a half ounce by weight or by bulk?

DR. PHERRIN:

Well, I get the stearate of zinc in an ounce bottle; it is a very light powder and I spatulate one-third to half of that into an ounce of vaseline on a large plat or plaque after melting the vaseline.

VOICE:

As much as you can incorporate into it?

DR. PHERRIN: No, I could incorporate a great deal more but I could not handle it in the syringe. I use the chlorid of zinc with it in severe cases. I have used iodin with it, but I have almost ceased using anything but the stearate of zinc, because I believe the acid in the pyorrhea pocket changes the character of the drug right there in the pocket. I think of nothing else. I have compared the value of it as I believe with the bismuth paste. I believe it has greater value than bismuth. While I am not detracting at all from the fame or the worth of the bismuth paste—I know that it does some marvelous things seemingly—but it fails where the roots of the teeth have not been thoroughly scaled. If necessary to the thorough cleaning of the roots desensitize the gums with cocain and make it thorough; make it as thorough as you possibly can; then stop the hemorrhages with hot water and adrenalin solution; after using that use the zinc; dry the cavity in any manner that you can, and fill your pocket with the paste. I have had good results that way. I hope that you all will have.

WISCONSIN STATE DENTAL SOCIETY MEETING AT MILWAUKEE, JULY 13-16, 1909.

DISCUSSION OF DR. WENDELL'S PAPER ON "PYORRHEA," PUBLISHED IN THE JANUARY ISSUE OF THE DENTAL REVIEW.

DR. ARTHUR HOLBROOK:

I do not wish to take up the time of the Society at all, I simply want to call on Dr. Wendel for an explanation. We are indebted to him for a definition of the trouble. We frequently have patients come to us, and in many instances Riggs' disease is confounded with pyorrhea. I would like to have the Doctor's definition of the two.

DR. WENDEL:

The only definition that I can give you is this: Riggs was possibly the first man who recognized pus pockets, and he was the first one who called attention to the condition. I believe pyorrhea was as prevalent at that time as at the present time, and Riggs called attention to it, and that is where it derived its name. I want to say this in regard to pyorrhea: It is a name that should not be used as a rule, simply because it means pus flow. If you followed me closely, you will recall that I said anything that will produce a local inflammation might produce a pus pocket. I will answer the question directly to the Doctor, that I do not believe there is any difference between the Riggs disease, that was formerly mentioned by Dr. Riggs, and what most of the people recognize as pyorrhea today. I wish that pyorrhea was cut out. I do not think the term should be used.

DR. ARTHUR HOLBROOK:

In extenuation I wish to say that I have a patient from the South. She has been under the care of two different dentists; one told her that she had pyorrhea and the other Riggs' disease. I wanted to know the full definition.

DR. CHARLES L. BABCOCK:

I wish to limit my remarks to an expression of gratitude to Dr. Wendel for, I feel, helping me to a little clearer understanding of the subject which we all recognize as a difficult one and one which presents itself to us in so many different forms. It is, as I believe, only through the kind of study that Dr. Wendel has brought to bear upon this subject, that we can hope to have a relative understanding of it.

DR. MAYER, (Oconomowoc):

I listened with much interest to the paper of Dr. Wendel, and I see that we all have our troubles in that way. I remember a year or two ago writing a paper on pyorrhea. After working in pyorrhea for ten or fifteen years, I began to think that I knew something about it, and wrote a paper. After reading my paper and receiving comments on its being all right and listening to Dr. Wendel's paper and others I have read, I draw a different conclusion as to the value of the information I tried to impart to others. There are conditions of pyorrhea that in my mind are associated with systemic trouble. I simply want to recall the case of one of my patients who came to me and said: "Now, Doctor, I want you to tighten my lower teeth and prevent them becoming loose." I looked at the mouth and found there was considerable inflammation. I explored about the teeth, but didn't find much of any deposition. However, I told her that she had better let them go until spring, when she returned. She went to Europe and came back to my office the next year and said she was very fortunate in not having had to visit a dentist since she left. She said she had been taking a course of treatment in Europe. That simply proved to me that she had been suffering from systemic trouble before leaving, and that caused the trouble with her teeth. Her teeth were found to be in perfectly normal condition. She has her teeth today, and that was as much as ten years ago. This proves to me that it was through no effort of mine or anybody else that her teeth became sound again. This is the reason I associated pyorrhea with systemic troubles.

I think the time is coming when, due to pathologists, we will become more scientific in our diagnoses. I think many of us today are treating pyorrhea in a haphazard way because we do not understand the causes. As soon as we do, there will be more enlightened treatment and better results.

DR. STEPHAN:

This is one of the most difficult subjects we have to deal with. Dr. Wendel certainly should be complimented on his most scholarly paper. I shall try to touch upon certain phases of the subject.

I believe, with Dr. Wendel, that pyrrohea is due to both local and constitutional causes, and in fact, in most cases I believe both causes are present. I wish to say this, that while a local cause is invariable, in the majority of cases a constitutional cause of some kind aggravates the disease.

I believe that faulty, excessive and non-usage of teeth is the greatest factor in the local cause. When I speak of faulty, excessive and non-usage of teeth, I refer particularly to the peridental membrane. The functional activity of the peridental membrane becomes lessened and over stimulated and the consequence is an irritation. If a tooth for years is not used the functional activity of the membrane becomes lessened. In the lessened condition of activity, the vascular current becomes sluggish and consequently a progressive degeneration occurs, such as has been spoken of by Dr. Wendel. When complicated with a gouty condition this becomes the site of the deposit.

Then there is excessive force upon a certain tooth and while that force in itself will not produce pyorrhea, if the patient is suffering with a constitutional trouble, it will. If the person is perfectly healthy I think that in the great majority of cases pyorrhea would not result, as the internal elements would be sufficient to combat the destructive forces.

Therefore I make the statement that we cannot succeed so well in curing pyorrhea, unless we build up the general system.

DR. MAERCKLEIN:

This thing is getting so that it is amusing rather than scientific and instructive. It reminds me very much of the Irishman who had bought a pair of boots and had a great deal of trouble in getting them on. He was asked some time afterwards how he was getting along and how the boots were. He said: "I am all right now, but I had to wear the boots six weeks before I could get them on."

How can a perfectly healthy body be diseased? When we have perfectly healthy bodies and perfectly healthy organs, we have no disease whatever. Whenever we have a disease of any kind, it is an indication that we have something wrong in our make-up somewhere. The entire body, however, need not necessarily suffer or be in sympathy with it. There is something wrong where there is disease. When we speak of the subject of pyorrhea and its various manifestations, they are in all probability only indications of disease. Then when you have made a perfect diagnosis of the case, you can act accordingly. How then can we make a perfect diagnosis when we have not yet arrived at a perfect knowledge of the disease? We do not yet know what the disease is. When we speak of local and general conditions, they probably develop into one and the same thing, and I am surprised that very few, if any, have touched upon what in my opinion is the probable cause of the local manifestations of the pus flow. I do not say that it is the cause of the disease, because I classify the disease as a manifestation. In my opinion this manifestation is a loss of tone; lack of proper nourishment. One of the underlying causes is probably imperfect circulation, and I think that when we recognize this we have got the subject in condition to get at the nature of the disease. We know that there are a number of diseases that contribute largely to faulty circulation, probably none more frequent and none more insidious than syphilis in any and all of its forms. We want to get first a clear understanding of what pyorrhea really is and what constitutes it. As every one of you understands, it is a flowing of pus from pockets around the tooth. Whether it is a scientific name or not, we know the condition and the question is how best we can treat it and how best serve our patients.

Dr. Stephan:

I had always supposed that Dr. Maercklein was a friend of mine. He doesn't seem to give me credit for having said exactly what he said.

Dr. Schlotter:

I just want to rise to a point of information. About six minutes ago the statement was made that pyorrhea was both infectious and contagious. I take it that it is neither. I would like to hear from the members at large.

Dr. French:

I am not going to say anything on the Doctor's paper, but I feel that I am a pyorrhea subject myself. I think I have it all through my system. We know that there is a disease that was formerly called Riggs' disease. I do not think there is any difference between pyorrhea and Riggs' disease as I understand it. Here are two men—one says it is a local trouble and the other says it is a constitutional trouble. I am glad that in Milwaukee we have a lot of brother dentists who are taking up pyorrhea as a specialty. I would like to have you show me a case of pyorrhea that has been cured. One has never come under my observation. I have seen several instances that have been sent home as cured by some of the best specialists, but in six months they were as bad as ever. I do not think local treatment will cure it. I think that lots of cases were treated as pyorrhea that were not pyorrhea at all. I do not say that the disease cannot be mitigated by treating it and taking care of it. We have not found out as yet the cause of pyorrhea. A short time ago it was thought that uric acid was the cause. I have enough uric acid in my system to kill ten people. I have had a case of pyorrhea in my own family. To all intents and purposes this person has been in good health. I do not remember that she has ever been under any treatment by a physician.

If you can decide that pyorrhea is a local disease, then there is some hope of curing it. If it is a constitutional disease, there is less hope of curing it unless you can reach the seat of the trouble. I have always given constitutional treatment along with the local treatment. It gives me the best results.

DR. WENDEL:

I only want to thank the members kindly for their courteous and close attention to the paper and also for the criticism they have given it. As to the treatment for pyorrhea, that was not the object of the paper. I was asked a moment ago whether it was contagious or infectious. If you will make a culture you can easily prove whether it is contagious.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

THE SAVING GRACE OF DIVERSITY.

If all patients were alike, the practice of dentistry would be drudgery. In fact, the practice of any profession would be monotonous if it were not for the varying temperaments the professional man is called upon to deal with. Variety is the spice of life, and while some temperaments are exceedingly trying and furnish a spice which is not altogether aromatic, yet the necessity of meeting and handling all kinds of people lends interest to professional life and tends to broaden one's views provided one takes advantage of the opportunities presented thereby for the study of human nature. It is no mean achievement for a dentist to take a disagreeable patient—one who has perhaps exhausted the patience of several practitioners without receiving proper professional services—and to so change and control this individual as to make him or her an acceptable and agreeable patient. Half the compensation of professional life lies in the satisfaction of knowing that people are not only served in a technical way but that they are made better temperamentally through the professional service that is extended to them. Professional men have a better opportunity of doing good to those with whom they deal than has the average business man. Professional relations are closer than business relations, and the service is of a more personal nature.

Individuality counts for more and it is this factor of varying individuality which adds to the interests of professional life. Following a hard day when most matters have gone amiss and many trying temperaments have been encountered, it is refreshing to have a cheery, witty patient come in and make some pat and humorous remarks.

It relieves the tension and gives one a heart to adjust the burden to the other shoulder and to move on.

About noon one day matters had reached the high tension mark. It had been a cruelly hard forenoon, and everyone about the office was fervently wishing that dentistry had never been invented. Almost at the same moment two men who were acquaintances stepped into the office. Immediately they began to banter each other good humoredly as to which should have the chair first. When one of them was finally shown into the operating room he called back to the other: "Oh, come on in, John. I'll only be a minute, and I guess the doctor can tolerate you in here if I can." "Say, Doctor," said the second gentleman, putting his head in the operating room door, "I didn't suppose you ever worked for such old, white-headed, decrepit chaps as that." "White-headed!" said the man in the chair. "If I were as old as you I wouldn't have any teeth to work on." "Yes you would," said the other, "'if you had bought and paid for them as I have. I'll bet you owe this minute for the grinders you chew your food with. If you would pay your bills in this office I wouldn't have to bankrupt myself every time I settle with the doctor just to make up for your delinquency." The point of this joke was that the man in the chair was worth several millions and paid his bills most promptly. Both men had gone through great trials and were carrying heavy responsibilities, but they were boys together again for the moment, and they made matters go more easily in that office for the rest of the day. It is such diversions as these that save a dentist's life.

THE EDITOR'S DESK.

AN AUTOMOBILE TRIP THROUGH EUROPE.

By Dr. Fred W. Gethro, Chicago.

[Continued from the January Dental Review.]

It was late in the afternoon when we reached Nice, but our appetites for beautiful scenery were so whetted that we decided to postpone dinner until we reached Puget-Thenier, a small town of thirteen hundred inhabitants, situated on the Var River about forty-six miles northwest of Nice.

Absolutely perfect, is the only way to describe the surface of the road that follows this beautiful river. The valley is very narrow and the cliffs almost perpendicular. In many places it was necessary to look straight up to get a glimpse of sky. We followed this winding, twisting road with its numerous tunnels and bridges to St. Martin, where we saw four small villages perched on the steep cliffs some two thousand feet above us. These wonderfully striking views continued until we reached Puget-Thenier, our destination for the night. The usual sign "Garage" was hanging in front of the hotel. In this case they had shooed the chickens to one side of the coop and put up a wire screen to keep them away from the machine, but it was a garage.

Driving Through a Typical Italian Village.

If you haven't motored in an ideal automobile country like France you can hardly appreciate the real joys of touring, with perfect roads, beautiful scenery, eating invariably good and rooms always clean and inviting, even in the smallest towns. Then the people—even the peasantry—are always courteous and give evidence that they are glad to welcome you. True the peasantry of France do not bow and smile at you, for peasant life is not conducive to smiles and good cheer. Life to them is a very serious affair and they show it in their serious faces. Most of the hard work—in the fields and out—is done by the women. One can travel long distances in the country part of France or Italy and not see a fresh looking woman or girl. Young girls start working in the field as soon as they are large enough to handle a hoe. I have seen women harnessed like horses dragging a wagon with a load heavy enough for a small horse. In northern France and Belgium I have seen women harnessed alongside of several dogs, but I will not give expression to my feelings on this matter, for if I did I am sure the paper would burn.

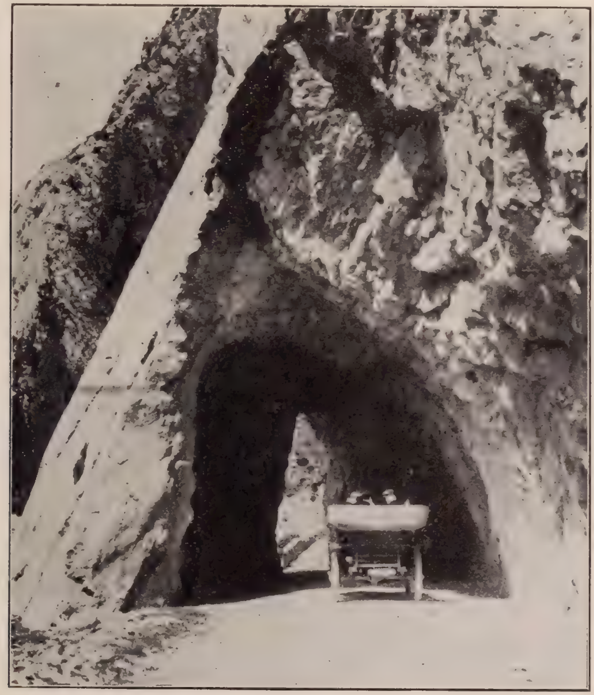
The Var Valley.

When touring in a machine one has no hot, stuffy, dirty cars to endure, no sharing compartments with people one does not care to know, no long smoky unpleasant tunnels to pass through, none of the discomforts of arriving in a town only to find all desirable accommodations gone and the next train leaving late at night or early next morning. If one is touring and the accommodations are not to one's liking the next town can easily be reached within a few minutes, so close together are these small towns. One can be absolutely independent in a motor car and the chief charm of this independence is that one can leave the beaten track and see some of the unusual things—the things that the average tourist never sees.

On the Var Valley.

Excepting for tire trouble the modern high grade car is as reliable an institution as a railroad train. I started from Genoa with a car that I had used constantly almost a year and it had never had any repairs nor was it even looked over before I left. I fully intended having it thoroughly inspected but a change of plans and lack of time prevented.

The car also had the original tires because I planned to put on new casings in Genoa, tires being much cheaper in Europe than here. I had been told that I could use the foreign casings which are made in the metric sizes. The nearest foreign tire in the metric size was a little large for a 34 inch wheel. This small variation would not amount to anything on a regular clincher tire but with a quick detachable tire—one held without lugs—I found that the casing would occasionally pinch the tube. We had some trouble until we reached Paris, where I put on a new set of American quick detachable tires and then my troubles ended.



Along the French Riviera.

Railroad grade crossings are not very numerous in France, most of the crossings being bridged. However, there are quite a number in southern France, all of which have gates. The law of France compels the railroad to close the gates five minutes before a train is due and a great many times we decided it was a very liberal five minutes. In some districts the gatekeepers have no telegraph or telephone connections and when the trains are late the gates must remain closed until the train passes, even though it is hours late. We were fortunate in not having any long waits, although on one occasion, at night, I was compelled to go to the house which was in total darkness, arouse the gate tender and have her open the gates. Most of the gates are kept closed except when vehicles desire to pass. They are always securely locked and usually guarded by a woman gate-tender.

In France you seldom find the driver of a cart near his horse. He usually walks along about 50 to 200 feet back of his rig and when he hears the horn of a machine he makes a wild dash to reach his horse. Notwithstanding the discomfort caused the driver by the machines there is no evidence of hatred shown—on the contrary they all seem to welcome the automobiles. Another peculiar thing that impressed us hundreds of times, was, that when we caught up with people walking on the country roads in the same direction we were going they would pay little or no attention to our horns and siren. True, if they were in the middle of the road they would invariably go to the right side but they would never turn around to see what sort of machine was coming. Sometimes the cars would be going at speeds up to forty miles or more per hour. It can be safely stated that the only speed limit in France is the speed of your car. How these people can refrain from looking around to size up the situation when a fast approaching machine is about to pass within a few feet of them is more than I can explain.

At Puget-Theniers we found the town "en fete." The soldiers were there and although it was the 18th of July we were informed that they were having their 14th of July celebration, an event corresponding to our 4th of July. It was dark when we arrived and as we entered the town we heard a band playing. Needless to say we were delighted to hear the music for we reasoned that a band playing in a town of 1,300 people gave promise of some novel sort of entertainment. And we were not disappointed for when we reached the center of the town we saw some 200 people dancing enthusiastically on the hard macadam road. They were all wearing their heavy thick soled shoes and dragging them over this hard surface making a rasping and disagreeable noise. We ordered dinner and had it served outside so we could watch the dancers. It was close to midnight when we retired and our suspicions were that they danced all night.

One of the Numerous Tunnels.

Early the next morning we started for Entrevaux. We turned from the beautiful Var River with deep regret, for its fascinating valley had left impressions of its wonderful beauty that we can never forget. If it is ever your good fortune to be in that part of the country be sure that you take this impressive trip.

We arrived at Entrevaux, one of the very old and unique fortress towns, at 7:30 in the morning. The pictures show the old walls and the bridge which is the only entrance to the town. Carriages and automobiles can not enter. All of the hauling is done by the natives or the pack mules. If you have read "The Princess Passes," you will recall that the authors thought Entrevaux was the climax of all that was beautiful. We spent some time exploring this wonderfully picturesque town with its narrow streets (no sidewalks) and fascinating little shops.

We were fortunate in obtaining admission into some of the quaint old houses and we found the interiors of most of them dark, damp and dismal. Practically everything is made of stone, wood being extremely scarce. It is wonderful how the people can live and thrive in these houses without sunshine or fresh air.

The next place of any importance was Digne, a town of 700 inhabitants, picturesquely situated on the Bleon River. We were now in the Basses Alps where the character of the scenery was entirely different, for the mountains here are rugged and desolate and trees are very scarce.

The next day found us in Grenoble, one of the tourist centers of France, with its population of 68,000. This place is noted chiefly for its beautiful position at the junction of two rivers—the Isere and the Drac—and for its large glove manufactories.

Grenoble is located in what is known as the French Alps and is somewhat surrounded by a number of beautiful mountain peaks, some 10,000 feet high. Over five thousand people of this city are employed in the manufacture of gloves.

We spent the night in Lyons, one of the most important cities of Europe. Lyons, with a population of about half a million, is the third city of France and ranks next to Paris in commercial importance. This is largely due to its commanding location at the junction of two navigable rivers—the Rhone and the Saone. It is claimed that about half of the world's supply of silks comes through the warehouses of Lyons, the city manufacturing annually $100,000,000 worth of silk and other goods. The country between Lyons and Paris presents nothing unusual, it is just beautiful touring country.

Paris exacts a duty on practically everything intended for consumption that enters its portals. The city is surrounded by a high fence and one driving into Paris must enter by one of the many gates, all of which are closely guarded by numerous officials called Octroi. You must pay duty on all of the gasoline (essence in France) in the tank of the machine. Many will ask how the officials can know how much there is in the machine. The driver has to declare the amount. If he does not know, the officials will measure it. Even if he does declare it the official may verify his statement. This usually takes some time, but no matter how much time it consumes it never annoys the officials. It would not assist matters to try hurrying them, for they never hurry.

Essence is cheapest just outside of Paris gates and costs about thirty-five cents a gallon; inside the gates it costs about fifty cents a gallon. When bought in quantities here at home we pay about ten cents a gallon for our gasoline. When entering Paris you pay a duty of ten cents a gallon. This is practically all profit to the city of Paris. I do not believe that our Standard Oil can do that well. And all this notwithstanding the fact that the French government has collected its large duty when the gasoline entered the country for most of the gasoline comes from America and Austria. If a poor peasant woman desires to take in a few eggs or some fruit or vegetables or anything that could be consumed in the city she must pay her tax on everything she carries.

The Octroi officials are clothed with supreme authority and the requirements of declaring are so strict and the fines so severe that few would dare try to deceive them. If a driver should declare he had 20 liters (a liter is a trifle more than a quart) and the officials should discover he had more than that amount they would probably fine him about $10.00. If the driver hadn't the amount of the fine they would keep the machine as security. I have seen them compel chauffeurs to open all parts of the car, even to taking all tools out of tool box so that they might be assured that no essence or other dutiable things were hidden in remote parts. However, they are usually more lenient with strangers, but on several occasions I have been compelled to wait about ten minutes while they measured the tank and the supply to verify my declaration. There are many places where a well directed tip will quiet the troubled waters but I would not advise any one to try it with the Octroi officers.

Most of the cities of France have their Octroi officials and frequently they will stop the car and ask if you have anything dutiable. If you tell them no they usually permit you to pass into the town without delay. As a rule they seem inclined to cause the automobile tourist as little annoyance as possible.

Paris is a truly wonderful city and it will charm anybody who appreciates the artistic. Much could be written about Paris but I will refrain from everything excepting that which pertains to my experience with the automobile.

Paris officials and policemen are extremely exacting in some automobile requirements and very lax in others. For instance, one can drive like mad (all motorists do in Paris) and the police will not even notice you, but if the slightest smoke is emitted from the exhaust one is arrested and fined. At night the lighting requirements must be strictly adhered to. One of the requirements is that the left front light must show a dash of green. This is an absurd regulation because nobody excepting the police ever notices it. I was stopped a number of times for not having this dab of green on my lamp and was arrested several times because the exhaust was smoking a trifle. I was also arrested because the baggage on the trunk rack interfered somewhat with the view of the French number.

Paris policemen always get you and this is the way they do it. Each policeman carries a loud whistle and if he desires to stop a passing machine he sounds the whistle and the policeman at the next station or corner steps out and halts you. After a few experiences I got so used to it that the sound of the whistle had no terrors for me. I always knew when I was going to be stopped even if I couldn't always guess why—and I would immediately warn the occupants of the car that it was advisable not to understand a word of French. Sometimes there would be two or three policemen around the car and they would usually start talking to me pretty strenuously, but I would always have my politest manners ready and I would talk (in English) in a way so that they would infer I was asking questions. If they do not release you, ninety-nine times out of a hundred somebody in the crowd that gathers will take up your battle with the result that you are released.

But Paris is to be envied in some of her requirements. Notwithstanding the streets are thick with automobiles practically day and night you will never see a smoking automobile. I wish Chicago would copy Paris in this respect. We have the laws but they are not enforced.

(*To be continued.*)

BOOK REVIEWS.

Anatomy and Histology of the Mouth and Teeth. By I. Norman Broomell, D. D. S., Dean and Professor of Prosthetic Dentistry, Dental Anatomy and Histology, Dental Department, Medico-Chirurgical College of Philadelphia, and Philip Fischelis, M. D., Associate Professor of Histology and Demonstrator in Embryology, Medico-Chirurgical College of Philadelphia, Third Edition, Revised, with 357 Illustrations. 454 pages. Price $3.00. Published by P. Blakiston's Sons & Co., Philadelphia, 1909.

It is with a sense of keen anticipation that the student or practitioner who is interested in the subject picks up this book, and a careful perusal will result in just as keen satisfaction. The authors have placed the profession under deep obligation to them in bringing out this work, and the literature of dentistry has been enriched thereby. A most encouraging feature of the book is that the nomenclature has been modernized and brought to date. The illustrations are in many cases reproductions of photographs, and are very satisfactory. The photographs of the teeth are excellent and present a vivid idea of their exact anatomy.

We cannot compliment too highly the authors and publishers on the general character of the work, and we bespeak for it a wide sale.

A Compend of Histology. By Henry Erdmann Radasch, M. S., M. D., Associate in Histology and Embryology, and Demonstrator of Visceral Anatomy in the Jefferson Medical College; Adjunct Professor in Physiology and Instructor in Histology in the Pennsylvania College of Dental Surgery. Second Edition, Revised and Enlarged, with 107 Illustrations. 350 pages. Price, $1.00. Published by P. Blakiston's Son & Co., Philadelphia, 1909.

This is one of the series of Quiz-Compends issued by this house, and is a condensed and concise presentation of the subject, in which the author has employed the fewest possible number of words to convey an accurate meaning in his descriptions.

Dental Laws. Condensed. The Requirements of Boards of Dental Examiners Throughout the Civilized World. A Brief Guide. By Alphonso Irwin, D. D. S., Camden, N. J. January, 1910.

Dr. Irwin has gathered into this pamphlet of 70 pages a great deal of information which will be of interest to those who contemplate moving from one state or country to another It has been brought down to date as accurately as possible, and may be relied on as authentic.

CORRESPONDENCE.

Editor DENTAL REVIEW:

It is somewhat exhilarating to read Dr. J. Clyde Macartney's article in the January issue of THE DENTAL REVIEW.

It should influence the men who represent the National Association to conform with Dr. Macartney's suggestions and send a competent delegation to the Pan-American Congress which is to take place in Buenos Aires.

It may be our last chance to grasp an opportunity which will not only broaden our horizon, but benefit the hard-working and struggling dentist.

Dr. Macartney mentions that he is cognizant of the fact that diplomatic corps must represent us. This is very suggestive, as any treaty entered governmentally is much respected from all points of view.

Now, there is the question of government diplomas. Of course we do not have them, but in lieu of this fact we have government-chartered institutions, and in the case in question in which Dr. Macartney suggests, "some work must be done by individually interested fraternities and institutions," I would say that North America has always proven to be a good mother to her children, and, like all mothers, is sometimes even tolerant to bad children. Hence, the government may aid our National by giving her a helping hand through its embassy. Our delegates will take active interest and attend to the minutest detail and fulfill their missions with zeal and sincerity for their professional brothers.

I trust, Mr. Editor, that all interested in Dr. Macartney's article may raise a voice of gratitude in recognition of the good advice and cheer he has given us and that you may induce some one to take active part in the proposition.

The good, Mr. Editor, that is bound to follow from a strict adherence to a systematic pursuance and solution of the problem which confronts us today in South America is, I believe, entirely dependent upon our National Association.

As for our friend, Dr. Macartney, let me wish him through your journal God speed in his undertaking, and only add in conclusion: "The battle is weak that is waged with one hand."

Very truly yours,
Bernard Bramm, D. D. S.,
Chicago.

NEW YORK LETTER.

My Dear Mr Editor:

The December meeting of the Central Dental Association of New Jersey listened to a very interesting paper by Dr. Frederick C. Kemple, of New York, entitled "Control of Forces in Tooth Movement." He exhibited models showing the various kinds of anchorages to which he referred in his paper. Dr. Kemple asserted that the knowledge of these forces was but in its infancy. He expects it to develop strongly and that many cases of malocclusion, the treatment of which is now the dream of the Orthodontist, will become realities.

Drs. Ottolengui and W. B. Dailey, of New York, discussed the paper, narrating cases from their own practices. Drs. Holbrook, Waldron and others of the N. J. Society contributed also. New Jersey has recently gone in strong for free Dental Clinics, and Infirmaries. At this meeting L. W. Dennis, M. D., President of the Bureau of Associated Charities, and of the Free Dental and Oral Clinics of Newark, N. J., spoke at some length of the work being done. Orange, and Elizabeth—towns within twelve miles or less of Newark—have also organized free Dental Clinics. Nearly every dentist of repute in Elizabeth has signed an agreement to give at least two (2) hours each week to this work. The medical inspector of the Orange Public Scools (who, by the way, is a woman—Dr. Katherine Porter) is largely responsible for the good work in that town. New Jersey is well up front in this development of that which has been talked of and dreamed of for years. Perhaps one excellent reason for this outcome lies in the fact that within a very few years past, a large number of local Dental Societies—ten or twelve members each—have been formed in the state. New Jersey is not so very large, and to have ten local societies is "going some." This is almost entirely due to the energy and ability of Dr. Charles A. Meeker, whom you gentlemen of the west know pretty well.

The January meeting of the First District Dental Society was a large one, for the mere mention of the essayist's name, Dr. J. P. Buckley, of Chicago, was sufficient to bring out a large attendance. He read a very interesting paper entitled "The Practical Treatment of True Pyorrhea Alveolaris." He is always sensible and uses but litttle time as compared with many other writers—this time but one half hour—but he spoke concisely and to the point, always. He deplored the fact that we had no better name for the manifestations of oral diseases than pyorrhea alveolaris but he suggested no other. Dr. LeRoy, in referring to that part of the paper, made a suggestion which we will speak of later.

Dr. Buckley chose, and very wisely, to tell us how he treated true pyorrhea alveolaris—there could be no question of what he meant from his description of the disease. He had a set of twenty-five instruments which he called the Logan-Buckley set which were, in the main, modifications of the old time push and pull instruments, such as Dr. Carr has in his set of one hundred and fifty. His tray for holding the instruments, each in its numbered rack, the points always in a sterile solution, was ingenious. He rarely uses an injected anesthetic for the operation of scaling, preferring that the patient should be able to indicate to him when he has gone far enough. As to the removal of pulps with the idea of deflecting the blood supply, he did not think that anything was gained by such a procedure. In examining a mouth previous to operating, if teeth were found loose and there seemed any question about curing the pyorrhea and restoring those teeth to firmness, they were extracted. Dr. Buckley has very little faith in splinting. After the scaling the sockets are treated with a solution of Iodin—Potassium Iodid—the patient given prescriptions for a proper mouth wash (astringent remedies should be used by the dentist only) and dentifrice and appointments for further socket medication. At the end of two weeks the patient is able to care for his own case until future somewhat similar surgical operations are required. In persistent pyorrhea pockets he uses a specially prepared solution of pheno-sulphuric acid.

Dr. D. D. Smith, of Philadelphia, opened the discussion. He claimed that the essayist had failed to state what true pyorrhea alveolaris is, had given no means by which any one could diagnose it, and so proceeded to supply the deficiency by stating what, in his estimation, was true pyorrhea alveolaris. That, if we understood him correctly, it was those cases where the alveolus was exuding pus. But, he went on to say, if we don't understand what it is, how are we going to treat it? He was also very firm in conviction that it was not a constitutional disease, for if it was, it would not disappear upon extraction of the teeth. No one ever saw a case of pyorrhea in an edentulous mouth. Philadelphia has been on the decline since the man who elucidated the theory that uric acid and gout had to do with pyorrhea. Dr. Smith also believed it was not of the slightest benefit to destroy pulps in loose teeth. Dr. Buckley's whole paper is on the proposition that there is something on the root which causes the trouble, but there is lots of calculus on teeth that does not produce pyorrhea. The whole question seemed to Dr. Smith to depend upon keeping the mouth clean and so treat it as to prevent pyorrhea. As to its causes, he believes it to be a disease of filth, induced by neglect, the size, shape and arrangement of teeth in the mouth, and temperament; it is never found in one of a sanguinary temperament. When one can rotate a tooth in its socket, it is better to extract that tooth in the beginning. The correction of occlusion has nothing to do with helping pyorrhea. One thing which the doctor emphasized as very important in those cases of molars where the root bifurcation had become exposed was to make a cavity in the tooth just above that point and overfill it with gutta-percha. Chlorid of zinc delaquescent was advised as treatment of the pus pockets, and phenolsodique he described as a God given remedy, and let your patient use zhongiva.

Dr. Smith was followed by Dr. E. C. Gaylord, of New Haven, Conn., who took occasion to compliment Dr. Smith on the results seen in his office when patients had been shown to several invited dentists. He spoke of the fact that seeing these results some six years ago had opened his eyes to what could be accomplished, and that he had profited thereby to such an extent that while before that time cases of pyorrhea were not desired, he now rather likes to have them.

Dr. R. G. Hutchinson, Jr., of New York, followed, heartily endorsing Dr. D. D. Smith's position, and emphasizing the fact that in his opinion there is and can be but one cause, namely, local. Neither Dr. Hutchinson nor Dr. Smith believe that pyorrhea is in any way systemic. In the main Dr. Hutchinson was in hearty accord with Dr. Buckley, each of these three gentlemen had his own pet medicine and wash, but the method of treatment—thorough scaling with special, delicate instruments—and complete polishing, was identical.

Dr. Arthur Swift, of New York, said: If we all would recognize pyorrhea in its incipiency we would not have it, so our main object should be prevention rather than cure. In the treatment of the disease the coöperation of the patient was imperative.

Dr. L. C. LeRoy, of New York, agreed with Dr. Swift that the disease was of constitutional origin, giving as reason that it was against all laws of nature to manifest such disease unless vital resistance was low enough to allow it to gain ground. In answer to those who claimed that the disease was cured by extraction and that it was never present in edentulous jaws he had to say that pyorrhea alveolarus —pus flow from the tooth socket—is cured, but the constitutional manifestation remains. Absorbtion of the alveolus goes on in most if not all mouths, until the process is entirely obliterated. There is where he fitted in his suggestion for a new nomenclature which would be broad enough to cover the entire field—alveolar absorbtion, alveolar atrophy or alveolar resorbtion. It more properly describes these conditions where pus is not present. Dr. LeRoy claims that to cure pyorrhea alveolaris is not enough; we know that that is comparatively a simple process. We must go back of that to stop atophy of process which begins in intestinal gingivitis and continues throughout the life of the dental organs as a rule and after until the process is absorbed. To cure pyorrhea alveolaris proper instruments are required to do the surgical part of the work and he, too, had a set of his own which he showed after the meeting. He contended that no set system of medication could be used by the thoughtful man. As much judgment and discrimination was necessary as in the practice of general surgery. Dr. LeRoy found argyrol a more universal remedy than I. K. I. Head's solvent, tri-chlor-acetic, etc., etc. His comment was very pleasing about Dr. Buckley's good judgment in selection of instruments as well as antiseptics and drugs. In closing the discussion, Dr. Buckley said that he had purposely refrained in his paper from discussing the subject as to whether pyorrhea alveolaris was of local or constitutional origin. He thought it was the latter.

By unanimous vote Dr. Buckley was accorded a very hearty vote of thanks for his excellent presentation.

In our last letter we spoke of a gathering of perhaps thirteen, on or about the thirteenth of the month, called the "Bugs." Two eminent newspaper men were at their gathering in December to which we alluded in our last letter. As a result of that the *New York Even-*

ing Mail had quite a long article by one of these gentlemen referred to above, in which he strongly advises doctors and dentists to advertise, and intimates that they must eventually do so. We may have more of this later. This month the "Bugs" are to hear from a gentleman who has spent much time with the "Hopi" Indians and a rare treat is promised.

New Jersey has been having its troubles for perhaps a year or more over a man in Jersey City, who is endeavoring to compel the Board to give him a license nolens volens. His latest move was to mandamus the Board before the Supreme Court of the State. He makes the ridiculous claim that the State Board agreed to give him a license if he would give up advertising. What the outcome will be is very uncertain. He has made a long fight. In much the same way New York is having its trouble with another man who came to New York from Utah and was received with open arms and made a member of one society at least. He cliniced on his method of treating pyorrhea alveolaris in some of our leading dental offices and in one, if not both, colleges. It develops now that he has neither a medical nor a dental degree, and claims that the treatment of pyorrhea is not practicing dentistry. He also claimed—we believe in open court—that there were or are but three gentlemen in the world who can cure pyorrhea—and that he is one of the three. As the other two (he gave their names) *are* dentists, we fail to see how he classes himself. Decision is to be handed down about the 21st, we believe.

Yours truly,
"THE BURROUGHS."

PRACTICAL HINTS.

Clasp Metal:—I almost always use clasp metal in connection with twenty-two karat or pure gold, but I often use such an alloy over and over again after refining it, and to cleanse or refine it I use equal parts of borax and salt petre on the heated nugget, fusing it on a charcoal block. For me it seems to cast as well the second, third or fourth time as it did the first.—G. W. Dittmar, Chicago.

Fads: —We dentists have been credited with running extensively to fads and extremes in methods of practice in the past and it may be that these are not confined entirely to the past. Many of these so termed fads possess merit and such have usually reached their level in usefulness after having been extolled to the highest pinnacle by their admirers and in turn consigned to obscurity by their defamers. —H. G. Logan, Aurora, Ill.

Clasps:—The casting of clasps for the purpose of engaging a natural tooth was my practice for quite a while, but I believe I will be compelled to admit that I have practically abandoned it because of the uncertainty of the alloy of the clasp after casting. Clasp metal, in my estimation, is one of the most unruly metals we have anything to do with, and I do not believe that the casting of it improves it in any particular. In fact, I think it has every disadvantage after it has been cast. The brittleness of the metal is against it if you depend on resiliency, as you usually do in clasps.—C. E. Meerhoff, Chicago.

Swaging:—Very few dentists have hydraulic devices for swaging. Most of us have to rely on the hammer and iron block, and good results can be obtained with these. The die and counter-die must be thick enough to withstand the strain. Very often, after a plate has been wired, it will be found that it has sprung a little. This may be remedied by filling the molding ring with modeling compound and while the compound is still soft, press into it to make the counter. Then chill the modeling compound and the plate can be swaged into this without danger of it afterward being sprung.—Lester Bryant, Chicago.

Lower Partial Plates:—I have thought a bar which unites the two lateral halves of a lower denture, if it be of the proper metal and the correct size, is better than a cast section, because adaptation to the tissues is not required at that point. If you want a little better shaped form than the round wire, you can get springiness and resiliency and strength and a casting all at the same time by using an iridio-platinum wire and casting around it, waxing up to it, thereby obtaining a little better form. But I am prepared to say that I am perfectly satisfied with No. 12 round iridio-platinum wire for that purpose.—Hart J. Goslee, Chicago.

Taking Impressions of Soft Gums:—A case was presented where the teeth had been extracted at the age of fifteen. The process had completely absorbed from the first molar on both sides, to the median line, leaving no ridge except soft, flabby gum tissue. The softest plaster would force the gum out of normal position. I mixed plaster as thin as for coating matrix for gold inlay and painted in on the gums with a camel's hair brush, kept adding to it till I got sufficient thickness to remain firm when set. I could then press impression material to position with force enough to obtain a good impression.—Emerson Cunningham, Parry Sound, Ont.

Cast Metal Bases:—The methods of making a plate for a partial or full set by means of casting is in my mind a question. A piece of cast gold, the way we cast it in dentistry, very often seems to come out slightly porous, and for that reason I would not consider it a good process for the purpose. If one would cast two very thin plates and then solder them together, it might possibly make a strong enough piece of work; otherwise the plate would have to be cast very thick in order for it to be reliable for the purpose. If we melt gold, pour it into an ingot and then roll it for the purpose of swaging plates, we have, as a result, a compact and strong piece of gold which is very well adapted for plates for dentures.—E. M. S. Fernandez, Chicago.

Cast Saddles:—The use of castings for saddles in connection with all porcelain structures such as diatoric teeth, or any of the detachable pin crowns, or the vulcanite attachments, are of satisfactory construction. You can cast these saddles in metal the thickness of the rolled plate and have a great deal more satisfactory saddle than if it was swaged, for the reason that the saddle is more rigid and less liable to be distorted. One of the great objections with our partial swaged plates is a tendency to an opening of the joint between the vulcanite and the metal owing to the pliability of the metal. The casting has sufficient rigidity with a minimum amount of metal, and that, together with its accuracy, places it far superior to the swaged plate.—F. E. Roach, Chicago.

Trifacial Neuralgia:—Trifacial neuralgia is a disease of middle life and old age, being rare in children and young adults. Females are subject to it somewhat oftener than males, about 25 to 20. It is prone to occur in members of neuropathic families who have subjected themselves to severe mental or physical labor or both. It occurs also as a late manifestation of lues. The injection of alcohol may be used successfully in the treatment of habit spasms, which in the beginning, probably, all have a peripheral sensory exciting cause, but which continue and many times grow progressively worse after the cause has been removed. When these motor nerves are subjected to the action of alcohol, their function, just as with the sensory nerves, is abolished, but with restoration of function there is no return of spasm, and in like manner the restoration of function in sensory nerves is not accompanied by pain.—Herbert A. Potts, M. D.

Reparing Slit in Shell Crown:—Sometimes in order to remove a gold shell crown we have to slit it on the lingual side, when it will readily peel away from the tooth. Now, after removing same, take a pair of contouring pliers and bend the slit ends together as near as possible, replace on tooth to see that general contour has not been lost, remove once more and you are ready to repair same. This, I find, is best done as follows: Take a small piece of well annealed 34 or 36 gauge gold, place it on inside of slit and gently burnish to place. This should be held in place with pliers and temporarily tacked with a drop of sticky wax which is applied from outside of slit. The crown is now carefully filled with investment material, and at the same time an investment is made of the entire crown. Thoroughly dry investment and solder with 18 karat solder using small delicate flame in blow-pipe. A crown repaired in this manner will not burn up, even though it has been in the mouth for years, and it will generally fit, and look like new once more.—D. H. Danek, Chicago.

Swaging Gold Plates:—The metal for a gold base should be 32 gauge in thickness, 22 karat. This thickness and high karat permits a closer adaptation to the die than a heavier plate of a lower karat. After being evenly annealed and adapted to the die, it should be tried in the mouth to determine whether or not the adaptation is what is desired. Any changes necessary should be attended to now. If the fitting has verified the accuracy of the model it should again be swaged, as it may have been distorted in handling. A heavy reinforcement is essential. The rim should be reinforced by soldering to it a 20 gauge 20 karat round wire. The ridge should be reinforced by 30 gauge 20 karat plate laid well over both sides of it. The whole palate of the upper should be reinforced by a separate piece of gold 29 or 30 gauge and 20 karat. This should be adapted to the palatial portion of the base accurately and carried from heel of base to a line where vulcanite will meet the reinforcement and extend about one-eighth of an inch farther, but at this point not in contact with the base. This affords an ideal finishing line as well as attachment for the vulcanite.—W. D. N. Moore, Chicago.

Pyorrhea:—My personal opinion, experience and observation of this so-called disease should be confined almost entirely to two etiological factors, viz., salivary calculus and serumal calculus. My reason for taking this stand is based upon the ground that the majority of operators confine almost their entire cure upon local conditions, in thorough removal of all deposits from the roots of teeth, and local medicaments for treatment. It does not necessarily follow that it is a local disease, for there must be a cause for this condition. It may be accounted for to a certain extent in that the elements that enter the system to build up the osseus structure, which is completed at about the age of 27 years, and the osteoblastic cells having fulfilled their functions, these calcareous products must be eliminated through the excretory channels, as the alimentary canal, urinary tract and the salivary organs. Naturally we have a preponderance of inorganic matter in the saliva, in the mature individual than in the younger, and this is the reason why the young person is quite free from salivary calculus, so if you do not find it extensively present in older people you usually will find they are afflicted with rheumatism, gout, kidney, liver or some other organic disease that calculus plays a part, provided it is not eliminated through the proper channels.—W. C. Wendell, Milwaukee, Wis.

MEMORANDA.

LOUISIANA STATE DENTAL SOCIETY.

The thirty-second annual meeting of the Louisiana State Dental Society will be held at the Grunewald Hotel in New Orleans, May 9, 10 and 11, 1910.

W. C. Richardson,
Secretary Executive Committee.

INDIANA STATE DENTAL ASSOCIATION.

The fifty-second annual meeting of the Indiana State Dental Association will be held in Indianapolis, May 17, 18, and 19, 1910, at the Claypool Hotel. This promises to be a great meeting.

Otto U. King, Secretary,
Huntington, Ind.

NEDERLANDSCHE VEREENIGING VOOR TANDHEELKUNDIGE ORTHOPAEDIE.

A society with the above name has been organized at Amsterdam, Holland. In English it means "The National Society of Dental Orthopedia." The officers are as follows: L. Frank, Rotterdam, president; I. J. E. de Vries, Amsterdam, secretary; P. Y. Y. Colbergh, Utrecht, treasurer. We wish the new society every success.

AMERICAN DENTAL SOCIETY OF EUROPE.

The thirty-seventh annual meeting of the American Dental Society of Europe will be held in Paris, France, on March 25, 26 and 28, 1910, at the Hotel Continental. A most cordial invitation is extended to members of the profession to be present.

T. G. Patterson, Hon. Secretary,
2 Quai des Eaux Vives, Geneva, Switzerland.

VIRGINIA STATE DENTAL ASSOCIATION.

The forty-first annual session of the Virginia State Dental Association will be held at Staunton, Va., July 20, 21 and 22, 1910. Every effort is being made to make this the most interesting and successful meeting of our society. Men of national reputation will give clinics and read papers. All ethical practitioners are cordially invited to attend.

W. H. Pearson, Corresponding Secretary.

TEXAS STATE DENTAL ASSOCIATION AND SOUTHERN BRANCH OF THE NATIONAL—JOINT MEETING.

The annual meeting of the Texas State Dental Association will be held at Houston, Texas, May 3, 1910. On May 4th, 5th and 6th the Association will hold a joint meeting with the Southern Branch of the National Association at the same place. The profession is cordially invited to visit Texas on this occasion.

J. G. Fife, Sec'y T. S. D. A.,
Dallas, Texas.

SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION.

The thirteenth annual meeting of the Southern Branch of the National Dental Association will be held in Houston, Texas, Wednesday, May 4, 1910, continuing in session three days. The association has accepted the invitation of the Texas State Dental Association to meet conjointly with them and as their guests. The Officers and members are actively at work and a most instructive program is being arranged. A preliminary program will be announced later.

Carroll H. Frink, Recording Sec'y,
Suite 301-302 Masonic Temple, Jacksonville, Fla.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held at the Dental Department of the State University in Minneapolis on March 15, 16 and 17, 1910. All applications must be in the hands of the secretary ten days before. All applicants must be graduates and present their diploma. Those having practiced in any of the following states for five years or more will be exempt from the theoretical examination: Iowa, Indiana, Michigan, Nebraska, Wisconsin or Montana. Minnesota dentists are admitted to those states on same conditions. For blanks and further information apply to the secretary.

Dr. Geo. S. Todd, *Secretary*,
Lake City, Minn.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The twenty-eighth annual session of the National Association of Dental Examiners will be held at the New Savoy Hotel, Denver, Colo., commencing Monday, August 1, 1910, at 10 a. m. The rates will be $2.00 per day for one person or $3.00 per day for two, European plan; large rooms for one or two persons, with private bath, $4.00 and $5.00 per day. Meeting and committee rooms at the service of the Association free and every accommodation extended. An early mail reservation is requested, the time being the busy season. A full representation from every State Board of the United States is earnestly desired.

Charles A. Meeker, Secy. and Treas.,
29 Fulton Street, Newark, N. J.

THE G. V. BLACK DENTAL CLUB CLINIC.

Everybody interested in advanced dentistry is cordially invited to attend the annual clinic of the G. V. Black Dental Club. The meetings will be held in the old State Capitol building in St. Paul on Thursday and Friday, February 24 and 25, 1910. The program was in part published in the January dental journals, and it does not seem necessary to publish it again. There will be operations of all kinds. A large number of men will hold table clinics. A large number of manufacturers have reserved space and will be present to demonstrate the new things in dentistry. The profession generally is invited to attend. For any information address ,

R. B. Wilson, Secretary,
Amer. Nat'l Bank Bld., St. Paul, Minn.

UNITED STATES ARMY DENTAL SURGEONS.

An examination will be authorized to be held at Fort Slocum, New York, and Fort McDowell, California, beginning Monday, March 7, 1910, with a view of establishing a list of eligibles from which employment as Dental Surgeon, United States Army, will be given as occasion may require, in the order of general average attained by the applicants. The full examination will cover a period of from ten days to two weeks.

Applicants will be authorized to present themselves at the nearest military post at which a commissioned medical officer is stationed, for examination as to physical qualification for employment as dental surgeon. Any physical defect which would disqualify an applicant for a commission or for enlistment in the army will be sufficient to reject an applicant for dental surgeon.

It must be distinctly understood that all expenses entailed by the journey for physical examination, and to, from, and while at the place of professional examination, must be borne by the applicant; there are no public funds from which any part of such expenses can be paid.

ROTTERDAM DENTAL SOCIETY.

The Rotterdamsche Tandheelkundige Vereeniging (Rotterdam Dental Society) offers once more a reward of *f*300 ($120, £25) for the invention of a gnatho-dynamometer that will be suited for use in dental practice.

The instrument has to register a pressure up to 150 kilograms. Below 20 kilograms the deviation may not surpass 1 kilogram, while with heavier pressure it ought to remain within 2 kilograms.

The chew contact plates must allow the introduction between a distance of 1 cm. This distance being less than 1 cm. it will be judged to be a great advantage.

The shape of the chew-contact plates has to adapt itself to the inclination of the chewing surface.

With pressure exceeding 20 kilograms the weight has to be seen at once or it has to be calculated very easily.

Although the instrument has only to assign the pressure in one direction, it ought to work with a moderate lateral movement, too. With the front teeth only the pressure with edge to edge bite, not with overbite, has to be measurable.

The instrument ought to be simple, strong and apt to be sterilized, as far as it comes in contact with the mouth. The chew-plates must not do damage to the teeth and their shape must allow that the pressure is applicable at any place between the chewing-surfaces. When examined, the assigner ought to be readjustable.

The competitors are requested to send franco specimen, until October, 1911, to the Rotterdamsche Tandheelkundige Vereeniging, 93 Aert van Nessstraat, Rotterdam, accompanied by a motto and description of use. Moreover a well closed envelop signed with the same motto and containing the name and address of the inventor.

The jury is composed of the dentists: B. Frank; A. A. H. Hamer, D. D. S.; I. J. E. de Vries, Amsterdam; C. H. Witthaus, D. D. S., Rotterdam, besides a technical expert. It will take decision in December, 1911.

The result will be communicated to all competitors; they will get back their instruments.

The prize will be delivered in January, 1912, in the annual meeting of the Rotterdamsche Tandheelkundige Vereeniging.

Dental and technical papers are politely requested to take this communication over.—The Secretary, Marie Muntendam, Isebree Moens.

AMERICAN CIRCULATING DENTAL CLINIC.

The Cleveland Dental Society has appointed a committee to be known as the American Circulating Dental Clininc, consisting of Drs. G. H. Wilson, W. A. Price, H. L. Ambler, Guy D. Lovett, V. E. Barnes and S. M. Weaver.

The object of said committee was to arrange an interchange of clinics with a given number of cities, probably seven, representing seven sections of the United States.

The cities chosen are Cleveland, New York, Philadelphia, Chicago, Kansas City, Los Angeles and New Orleans.

The idea is to have each society appoint a similar committee of six to co-operate with the other cities. Each committee's duty would be to collect, say, ten, of the best possible clinics from their districts. Clinics to be composed of New Devices, New Methods, Superior Pieces of Workmanship, or anything the committee should elect as an educational clinic of sufficient importance.

We want the new things brought out and believe this will be the best way to bring the different sections of the United States in close touch with one another.

We realize there are many valuable ideas and appliances lying around dormant and kept from the profession because the originator is not a writer for magazines, or he is too busy to take the time to exploit them.

An active committee will be able to obtain a great many such and induce the men to put them in a presentable shape for the American Circulating Dental Clinic.

We are desirous of having the committees appointed at once, so they will have time to provide their display. The idea at present is to have the clinics all shipped to Cleveland first and arranged in a systematic and presentable shape for exhibition. Also arrange the combined clinics in shipping trunks so that they may be forwarded to the next city. Each clinic is to have a short typewritten explanation to accompany it, so any member of the committee to whom it is shipped could examine it and be able to explain in a few words at time of exhibition.

After the clinics have made the round of the circuit, Cleveland, for instance, would take out her old clinic and put in a new one, and so on around the circuit. This would give each city practically one year to collect the new exhibit.

There being seven cities in the circuit would take in the winter months, say from October to April, the probable months in which societies hold their meetings. These dates will have to be arranged later to best accommodate all.

We do not want this exchange for convention use, but as a grand show for the city and surrounding territory which it represents. The committees have been chosen from men who are enthusiastic and who frequent conventions in order to meet with progressive men. The committees are appointed in the following manner: Two for three, two and one years, respectively. In this way the oldest members, being familiar with the work, would be of great assistance in keeping up the high standard of clinics which we hope to obtain.

There are more details to be worked out later, and the Cleveland Committee will welcome any suggestions from the other committees.

The aforesaid cities have been chosen as best representing their section of the United States, and we hope to receive immediate and encouraging co-operation. If we all work together we can make these meetings the largest exhibitions of progressive dentistry ever seen.

All clinics should be sent to your district chairman, and he in turn will send his combined clinic to Cleveland for the first meeting, so they may be arranged for the trip around the circuit.

We hope every city chosen will put its shoulder to the wheel and try to make its exhibit the best.

Yours truly,
S. Marshall Weaver,
Central Chairman.

N. B.—Send clinics to your district chairman, keeping models small and light as practical. Accompany each with a detailed description as concise as possible.

At a meeting of the Chicago committee on the American Circulating Dental Clinic it was decided, in order to create interest and reach the greatest number of dentists who otherwise might not be asked to clinic, to make the clinic competitive. A letter explaining the clinic in detail should be sent to the district chairman, Dr. D. C. Bacon, 103 State street, Chicago, and the clinic under separate cover with concise explanation accompanying it. Each clinic will be given a number as it arrives and the committee will select the ten best, after which the names will be atached so that the clinician may receive full credit for his work.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, MARCH, 1910. No. 3

BANQUET IN HONOR OF DR. G. V. BLACK.

A banquet in honor of Dr. Greene Vardiman Black, M.D., D.D.S., Sc.D., LL. D., was given by the Chicago-Odontographic Society, Saturday evening, January 29, 1910, in the Gold Room of the Congress Hotel.

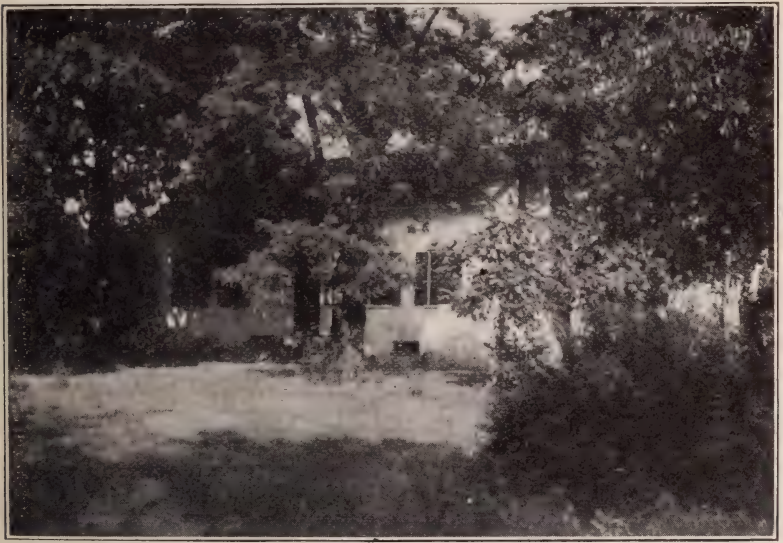


Fig. 1. Old home where the Black family lived after 1844. The house was built by William Black and his sons, among them G. V. Black. The clay was dug, the bricks made and burned near the house, and the lumber was sawed out of trees from the timber near the edge of which the house was built. It is still in a perfect state of preservation. The picture shows the west front. The farm is now owned by Dr. G. V. Black.

After a sumptuous dinner the speech-making began. Dr. William H. G. Logan, President of the Chicago-Odontographic Society, acted as toastmaster.

Toastmaster Logan, in introducing the first speaker of the evening, said: To you, Dr. Black, our honored guest, and to you, ladies and gentlemen, our invited guests, it is a very pleasant duty for me on behalf of the Chicago-Odontographic Society to greet and bid welcome this large and brilliant company. I am doubly pleased to see the faces of so many distinguished practitioners of dentistry gathered about these tables, representing as you do Canada, Europe, South America, Australia, and every part of the United States. (Applause.) The place, the occurrences of the last two days and the purpose for which we have assembled naturally fill us with professional pride and pardonable personal emotions. To our invited guests let me say that this banquet registers not a new era, but registers again that kindly feeling that the older men of the profession have always maintained in the State of Illinois and in the City of Chicago among the profession since there has been a profession in this part of the country. We have gathered here this evening to show the world our appreciation of our elderly honored guest. Elderly, yes, but not old, not decrepit, not weak, not dispirited, but with a secret vigor of mind and endurance of body that is almost the envy of many of us younger men. (Applause.) Our honored guest is one who through a long and fortunate career has been enabled to render signal service to his profession and through them to benefit mankind, and at the same time achieve a just and great renown for himself. But these things are not for me to say. These compliments, although true, had better come from more close associates, for I know that you are impatient to hear those you have come to hear. Therefore I will not detain you longer, other than to narrate a story that has to do with the life of the first speaker.

Fig. 2. Another view of the old house, south front.

Some forty years ago down in the southwestern part of the State of Illinois, not very far from the Mississippi river, we find that a tall earnest young dentist had located in the village called Waverly. I use the term "located" rather than "was in practice," because I am creditably informed that he was not practicing dentistry much as yet.

One day, however, a patient did come to him suffering from some dental pathologic lesion that was difficult to diagnose. Our young Dentist in question did the best he could for this patient and dismissed her. He then spent some hours in study of this case without solving the problem to his entire satisfaction. So our thoughtful, conscientious dentist who was no other than Thomas L. Gilmer, went to a neighboring village to consult with a prominent young dentist who was not only located there, but was really practising dentistry in a most masterly way and was widely known in spite of the fact he was but a trifle over thirty years of age.

Fig. 3. Family burying ground located on the farm. G. V. Black's father and mother are buried here.

Dr. Gilmer upon arriving in this village went to the stairs that led to the distinguished practitioner's office and our modest Gilmer of today was equally modest on that day, so his courage failed him and he walked away. And I tell you the truth when I say Dr. Gilmer tried to ascend those stairs three times before he gained sufficient courage to open the door of this office, that was located in the city of Jacksonville, and was occupied at the time, forty years ago, by the then distinguished practitioner of dentistry, Dr. G. V. Black. (Applause.)

Forty years have passed and every year has resulted in the development of a more close and friendly relationship between these two men; and has resulted in the development of this modest unknown Gilmer in Waverly of forty years ago, into the modest author, professor and one of the few really great living oral surgeons of today, who will now entertain you with

A FEW PERSONAL REMINISCENCES OF DR. BLACK'S LIFE.

Dr. Thomas L. Gilmer, Chicago.

Mr. Toastmaster, Honored Guest, Ladies and Gentlemen: I was not selected to speak on this grand and memorable occasion because of any special ability I have for speaking, but because of the close and intimate relationship which has existed between our honored guest and myself for well nigh forty years. Some one asked me tonight if Dr. Black was not my brother-in-law. (Laughter.) I said, No, he is not my brother-in-law, but much more than some brothers-in-law, he is my very dear friend. (Applause.)

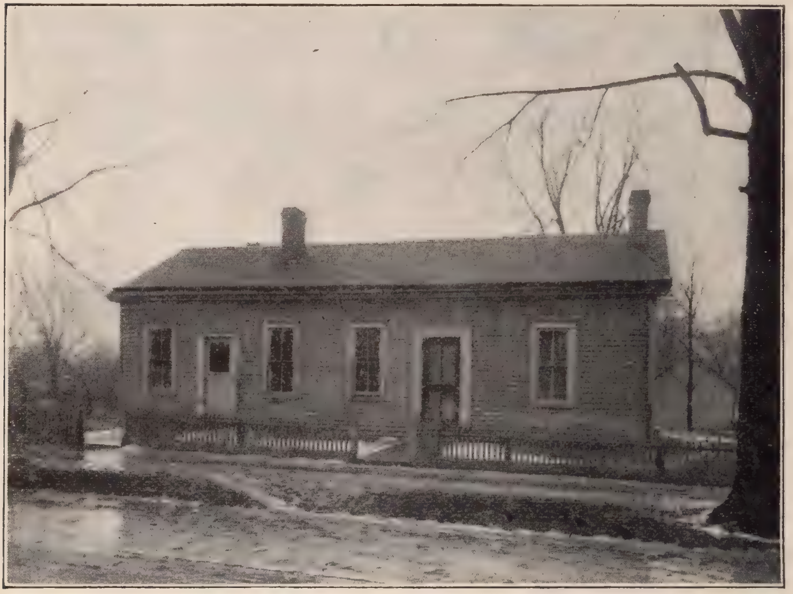


Fig. 4. Home of G. V. Black while he practiced dentistry in Winchester, Illinois, before the war. The house has had an addition on the west end (left side of illustration) since he lived there. This was his first home after marriage.

After accepting the invitation to speak and having had time to deliberate on the matter, I asked myself, what can I say of such a grand man on such an occasion? Now that I am on my feet I am again asking myself what can I say of him?

In western Pennsylvania there is a village composed wholly of sturdy Germans. It is a unique community, having customs in many respects different from most villages. One of their old and honored customs is peculiarly beautiful. On the death of one of the men of the community all of the surviving men come together after the departed is laid to rest and speak of his virtues and bewail their loss.

Living in the town was one, Hans Schumacker. In one respect only was he in anyway similar to Dr. Black. Unlike our hero of the evening who is kind, generous, lovable and in all ways good; he was unkind, stingy and unlovable. He was the black sheep of the community, there were none others there like him. Hans died, no one regretted his demise, but the custom of coming together when one of their members died was so well fixed it could not be dispensed with, even in the case of one so bad as Hans. Each was asking himself, "What can I say of this man?" They did not believe in speaking unkindly of the departed. They assembled, the chairman took his seat and his neighbors sought their accustomed places about him. It was a trying occasion. The chairman called upon one, then another, to make some remarks. One after another declined. When the last

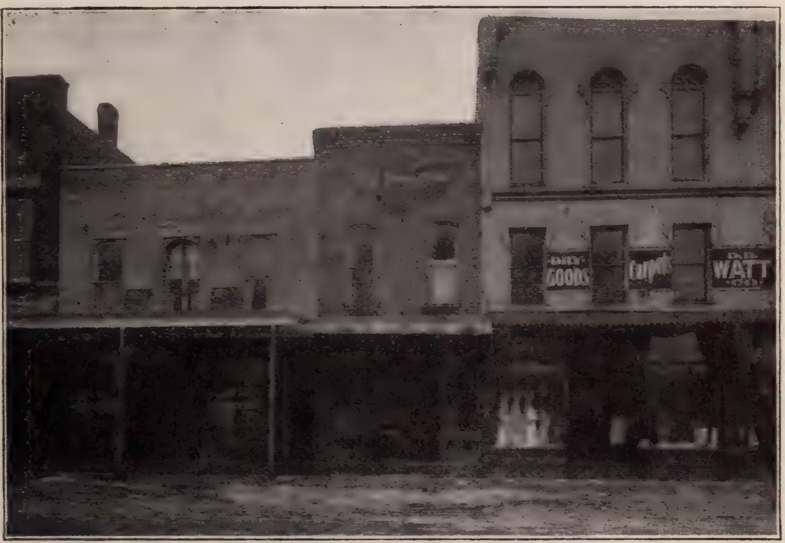


Fig. 5. Dr. Black's office in Winchester was in the back part of the building in the center of the picture which has the sign "City Drug Store" on it. This was Dr. Black's *first office* after beginning the practice of dentistry for himself.

one was called upon he felt that it would not be decorous to have met and no one speak a word for the departed. He slowly arose, hesitated, then said, "Mr. Shairman an chentlemen, dere vos vone good ting I could say about Hans, he was a good schmoker." I can truly say of Dr. Black, he is a good smoker. (Great applause.)

In 1869 and '70 I was a student in the old Missouri Dental College, now the dental department of Washington University. There were associated as teachers in that institution at that time a coterie of great men, Dr. Homer Judd, Dr. W. H. Eames, Dr. Isaah Forbs, Dr. Henry S. Chase, Dr. H. J. McKellops and others. St. Louis was then the headquarters of the best dentistry in the world. In my experience as a student with these men, I heard them frequently speak of one—a Moses—that had been discovered in the bullrushes in the northern part of Egypt, in Illinois, who like the prophet of old, was to lead the children of dentistry out of darkness into light. He was becoming prominent at that time. They told us about his investigation in gold foil and of many other things he had done and was doing. His work on gold foil was so well done that it could not be bettered; it stands today just as he left it, fully completed, unchallenged. It will ever stand thus, as all similar subsequent work done by Dr. Black. When it is done, it is finished. (Applause.)

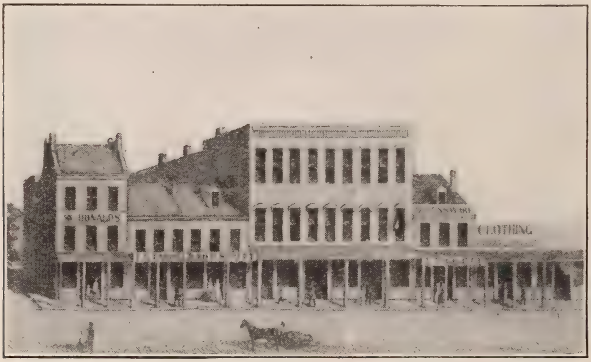


Fig. 6. Dr. Black's first office in Jacksonville, Illinois, 1864 to 1868, in what was known as the Bibb Building, near the right end of the group with the signs "Queensware" and "F. T. Gillett." This building was on the north side of the public square near the east end.

In 1871, I located in Waverly, Illinois, about twenty miles from Jacksonville, the home of our hero. It is true, as said by the toastmaster, I have consulted Dr. Black many times with great benefit to myself and to my patients. Dr. Logan made a good story of my first visit to Dr. Black in introducing me, but he did not get it exactly right. (Laughter.) I will relate the true story. After locating in Waverly, it was not long before I came in contact with Dr. Black's patients. I saw the beautiful fillings he had made. I saw beautiful restorations; I saw beautifully contoured fillings, artistically finished, perfectly polished, and I also saw exempified in the mouths of his patients even at that early day that which has since become a byword the world over—"extension for prevention." (Applause.) It was natural that I, a young man full of youthful enthusiasm, should have desired to see this great man in dentistry and if possible imbibe some of his ideas, so I made up my mind that at the first opportunity, I would go to the Athens of the west, as Jacksonville was then known and visit him. The day was set; I got on the train, but before I had gone far, began to think of the audacity of the undertaking; that I, a mere boy, who knew so little, should presume to go into the pres-

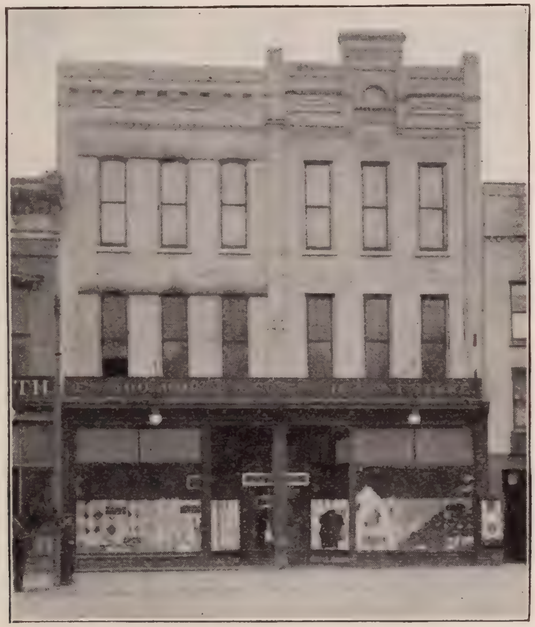


Fig. 7. Dr. Black's second office in Jacksonville, Illinois, 1868 to 1876. He occupied the front portion of the second and third floors of this building, using the second floor for reception room, operating room, etc., and the third floor for his laboratory and for scientific work. He taught an evening class in chemistry in this room. This building was partially destroyed by fire since Dr. Black moved from it, and a new front has been built. Formerly there was a stairway in the center of the front of the building, which led to Dr. Black's office. Dr. Black occupied this office when the writer first met him.

ence of such a great man. I drew a mental picture of Dr. Black, it was something like this: He was an austere man, fine looking, with massive brow, wearing gold spectacles, side whiskers, chin cleanly shaved, elegantly dressed, Prince Albert coat, well creased trousers, highly polished shoes, with possibly a diamond stud in his shirt front. (Great laughter.) You can readily imagine that a diffident young man with that mental picture before him might hesitate before going into the presence of such a man. The nearer I got to Jacksonville, the more nervous and excited I became, but was determined to see him. I went down East State Street to the public square where his office was located. I found the building and saw the modest sign which read, "G. V. Black, Dentist." His office was in a three-story brick building on the south side of the square. I went up the stair-way, but had tachycardia before I got to the top. When I reached the door I had not the courage to ring the bell, and backed out. I went down the stairs as rapidly and quietly as I could, fearing some one might open the door and see me there. (Laughter.) I was disgusted with myself. I went home, but did not give up the desire to see this great man. After a time I tried again, but before I got half way to Jacksonville, I was viewing this mental picture again and was badly frightened, but I made up my mind that I would ring the bell this time. I went to the office and forced myself to ring the bell. I hoped that the bell would not be answered, for then I could escape the terrible ordeal expected and not feel dishonored, but a young woman opened the door, I gave her my name and told her my errand. I assured her that I did not wish to disturb the doctor if he was busy. She went into the operating room and soon returned saying that "the doctor is engaged, but will see you presently." I looked about the office, there were good pictures on the wall, good but plain furniture, a table in the center of the room, on which were periodicals and papers. Somehow the office did not exactly harmonize with the mental picture I had painted of Dr. Black. I was wondering what I would say, when I saw Dr. Black, I knew I would make a fool of myself. Presently a gentleman walked in, who resembled the Dr. Black you know, but as you see from the picture he had more hair on the top of his head where hair ought to grow. He greeted me with a smile on his face, a twinkle in his eye, which you all know, and a warm hand shake. He said, "I am glad that you came to see me. I have wanted to see you ever since you located in Waverly." From an insignificant looking boy, and a dwarf at that, I had developed into a full fledged man immediately. I was nervous no longer; I had no more tachycardia, in fact, I was made somewhat chesty to be received in such a way by such a man. When the patient left the office he invited me into his operating room. He showed me his instruments, how he prepared blocks of gold for filling teeth, etc.

Then he said " let's go up stairs," so we went to the third floor. There I saw all sorts of things, a big foot turning lathe, fine tools of all kinds, an anvil and things that go with it, mechanical drawings on the walls, some moving clockwork causing a fluid to flow slowly over some teeth suspended in a jar, which I afterwards learned was an effort to produce chemical erosion of the teeth. I also saw test tubes and other chemical apparatus, and a blackboard with chemical symbols on it. He was teaching chemistry to a class in this room those days. There were gas bags and other things too numerous to mention. I gazed at all of these things in wonder. I had great curiosity about many of them which I did not understand, but dared not ask too many questions, as I did not wish to expose my ignorance.

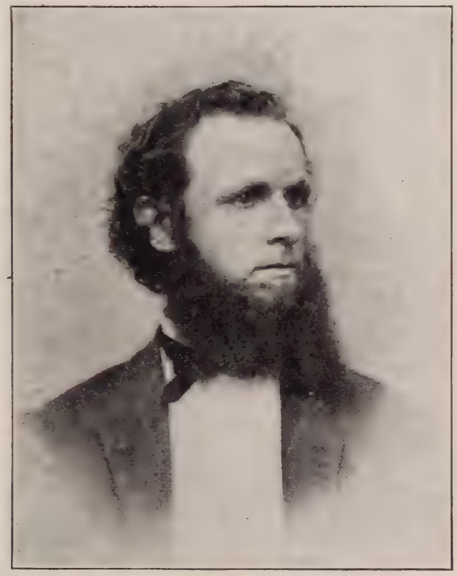


Fig. 8. Photograph of Dr. Black taken about 1865.

Those gas bags interested me and at the present time, if it were not for one thing, should suspect that the Doctor was studying aviation. But I know he was not, else everybody would now have been flying twenty years ago, as he would have mastered it if he had tried. In doing a thing he starts out to do, Dr. Black is like the old darkies' idea of Jefferson. A short time after the death of Mr. Jefferson, a good , pious old lady went to see his last resting place. She was shown the grave of the departed by the caretaker, an old colored man, who had an exalted opinion of the dead president's ability. She said to him, "I wonder if Mr. Jefferson is in heaven." He answered, "You bet he is, if he wanted anything, he just went and got it; if he wanted to go to heaven he's gone there shore and sartin." Had Dr. Black wanted to make a flying machine, he would never have given it up until he accomplished it.

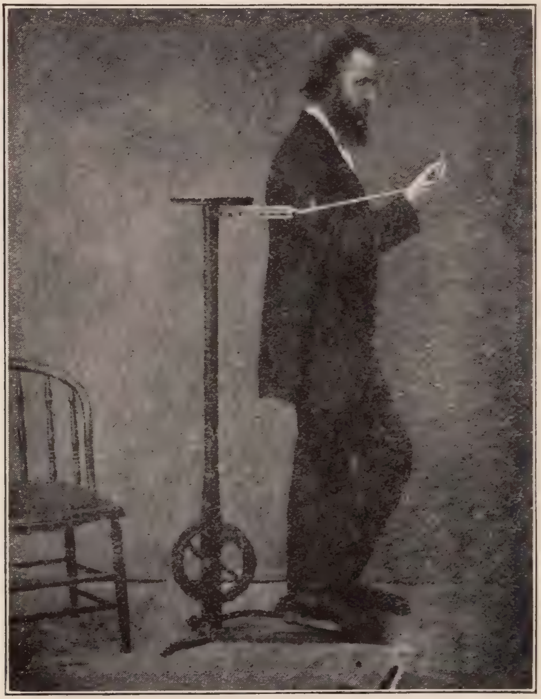


Fig. 9. Dr. Black and one of the first models of the cord-driven dental engine invented by him about 1870. Reference to this engine will be found in the Illinois State Dental Society Transactions, 1871, p. 105; also in the Dental Cosmos, Vol. 13, 1871, p. 415.

After that visit to Dr. Black, at his request, I frequently went in to see him. I saw his buring engine in its infancy, and his machine for making burs. He was anxious that I should have one of his cord engines, the first engine of the kind ever constructed. My finances being rather slim, the Doctor offered to let me have one, which had seen some slight service, for half price. I used this machine for many years with great satisfaction.

I will relate a little incident which shows the Doctor's interest in young professional men and his deep interest in his professional studies. There was a theatrical performance at the opera house in Jacksonville, which Mrs. Gilmer and I went down to see. Our seats happened to be near Dr. and Mrs. Black, who were also there. At the conclusion of the first act, the Doctor came over to us and said to me, "Let's run up to the office for a few minutes, while the scenes are being shifted, I have something I want to show you." We skipped out and he showed me some microscopic work he was doing. He had recently bought a microscope, but it did not suit him, so he had reconstructed it more to his notion. He explained in detail all the

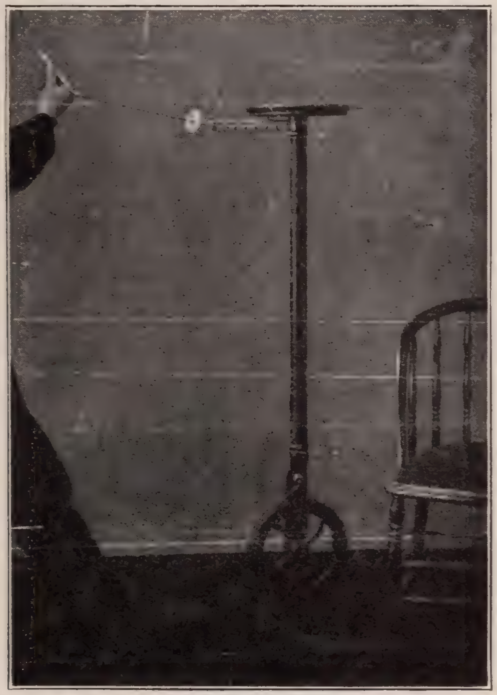


Fig. 10. Another view of one of the first models of Dr. Black's dental engine. It will be noticed that the cord from the fly wheel passes through the upright hollow standard to a wheel on the shaft.

betterments he had made, then he took a stalk of celery from a vase and put a drop of water from it on a slide and put it on the stage and focused it and said, "Look at that." I looked and there were multitudes of animalculae doing all scorts of gymnastics. He then showed me fresh water algae. He was commencing his microscopic work at this time. He showed me slides of histological tissue, slides of plants, woods, etc. We had a fine time. I suggested that we had best go back to the theater, as it was about time for the show to close. I lost all but the first act of the show, but I had seen a far greater per-

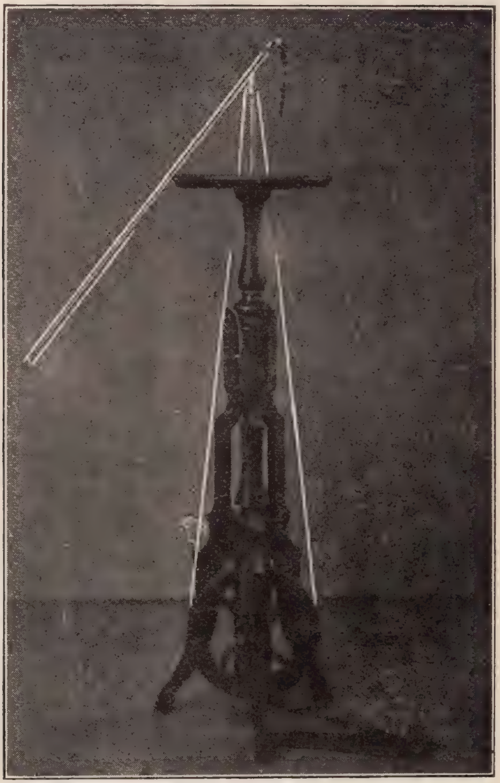


Fig. 11. The later model of dental engine invented by Dr. Black. In this model the cord passes to within a couple of inches of the hand piece, and the transmission to the hand piece was by a cable. Dr. Black subsequently invented a new "wrist joint," by which the cord passed around a wheel on the hand piece shaft direct. It is believed that this was the first successful engine of this kind ever constructed. This engine has a walnut tripod frame and was used by Dr. Black up to the time that he moved to Chicago in 1897. It is in perfect working order at the present time. Dr. Black manufactured and sold several hundreds of these engines, finally disposing of his patents to the S. S. White Dental Manufacturing Company. The writer purchased one of these engines from Dr. Black soon after 1870 and used it for many years.

formance by a far better actor, so I was satisfied. Once Dr. Black honored me by coming out to Waverly to see me. He looked over my outfit. Well, I did not have very much. He wanted to compliment me in some way and not seeing much of an equipment, picked up a little oil stone from my bracket, looked at it critically and said, "That is a fine stone, I wish I had one like it." I was pleased at this compliment and insisted on his taking it, but he would not deprive me of such a valuable article.

Dr. Black subsequently moved his office to his home; in 1876 I moved to Quincy. This separated us a little farther, so that I could not visit him as frequently as formerly, but made up for it by remaining longer when I went. I would go Saturday afternoon and spend Saturday night and Sunday in his home. This gave me an insight into Dr. Black's home life. His home life with his family about him was ideal in every respect. I cannot refrain from mentioning some of the things I observed while visiting in his home. Dr. Black would stay up until the small hours on Saturday night for the purpose of

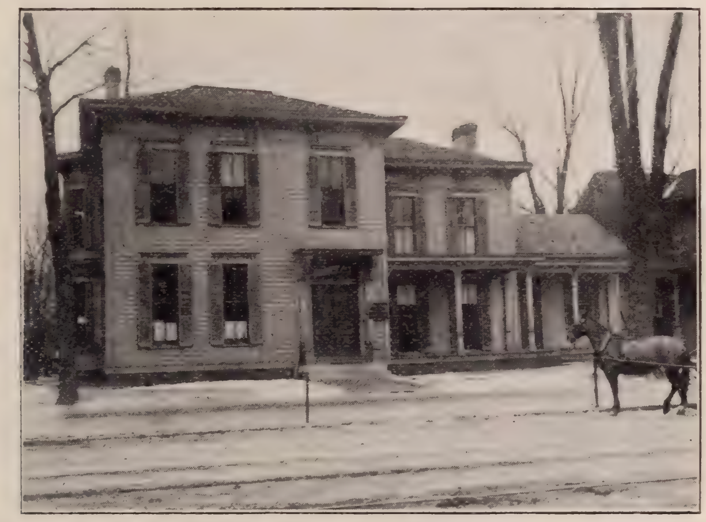


Fig. 12. Dr. Black's office and residence on East State street, Jacksonville, Illinois. Dr. Black lived in this house from 1865 to 1897. Four rooms, two on the first and two on the second floor, to the left in the illustration, were added to the house in 1876, and Dr. Black moved his office to this building. The front room on the first floor was the reception room, the operating room being just back of it. The chair stood in the bay window, to left in illustration. For many years the laboratory was on the second floor, above the operating room, but was later changed to a first floor room in the other part of the house. Dr. Black's older son, Dr. Carl E. Black, now occupies the same offices, and another physician uses the other first floor rooms for offices. The second floor is used for living rooms for several trained nurses.

showing me what he was doing. When morning came, we got up early, went to the office and remained there until about 1:30 o'clock when dinner was announced. At the table scientific matters were dropped and we just had a good time with the family in general conversation; after dinner, we would go into the parlor and pretty soon Miss Black would come in and at her father's suggestion, play an accompaniment for the doctor who would sing several songs. Afterward, he would take his 'cello and play several solos. As I have said, his home was artistic. There was an air of refinement about it. There were pictures on the wall, some painted by Mrs. Black, others by the doctor. Every member of the family could make pictures when they were little tots.

Now, gentlemen, I am going to let you into a little secret, it will surprise you when I tell you that Dr. Black has had good help all the years in the great work he has been doing, help of one who has made it possible for him to have done all these things. That person is in the balcony of this room at this time. The helper is Mrs. G. V. Black. (Loud applause.) A nobler woman never lived. She has shielded Dr. Black from the many petty vexations, incident to conducting a home and rearing a family. She has cared for his health and in every way been a help-meet in the in the true sense. (Applause.)

About 1878, I found Dr. Black busily engaged in the study of bacteriology and laying the foundation for his great work, "Formation of Poisons by Microörganisms. He was always at work on some problem, not always of a professional nature, but all sorts of problems. I have never known a man so prolific, he can do more things and do them well, than anyone I have ever known.

Jacksonville had at that time, more distinguished medical men than any other place of its size in the United States. It was the home of Dr. David Prince, who was one of the most noted surgeons in the west. Dr. Prince and Dr. Black were close friends. Occasionally I attended the city Medical Society in Jacksonville with Dr. Black, he was always one of the most forceful speakers on all subjects presented. While working all the while on numerous outside subjects he took up the study of the languages, mastering German, French and others, that he might read scientific articles first hand in those languages. He also completed his medical education about this time, went before the State Medical Board and passed a most rigid examination and was licensed to practice medicine. During this time, he almost overdid the matter of study. He worked at the chair all day and with his books and microscope at night. He grew so thin that his friends remonstrated with him, but it did no good, work he would, the habit was so fixed, he could not stop it.

A story is told of the Doctor about this time which I cannot vouch for, but it is a good one and I will relate it. It was the Doctor's habit to go to Dr. Prince's infirmary frequently to assist the surgeon, in difficult operations, or do them himself. One Sunday morning while at Dr. Prince's, a newsboy came into the office to sell papers. Entering the hall through the open door, he saw hanging in the rear of the hall, a complete skeleton. Never having seen such an object before, he was frightened and ran for dear life across the street.

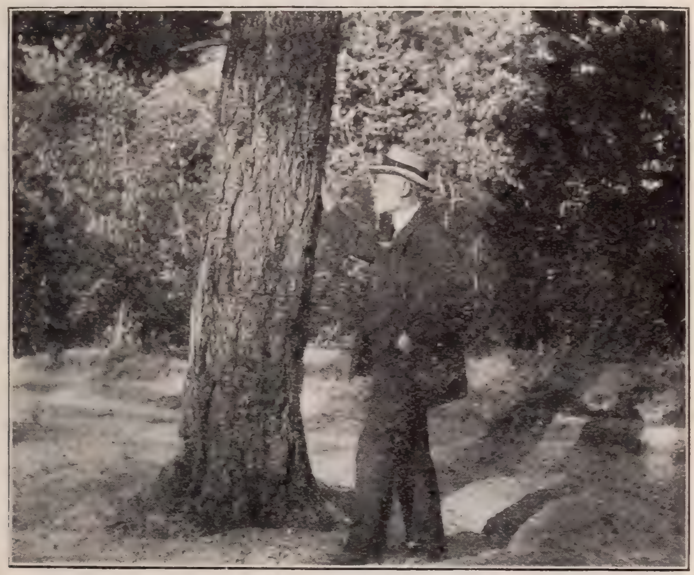


Fig. 13. Dr. Black in the woods on Cheyenne Mountain, Colorado, west of Colorado Springs, July, 1909.

Just at this time, Dr. Black's emaciated form appeared at the door. He desired a paper and beckoned the boy. The lad said "No sir, you can't catch me, I saw you in the hall just now with your coat off."

Dr. Black has always been a keen observer of anything around him. I have shown you a slide of Dr. Black, standing by a tree in an observant attitude. He will pick up a stone and tell you all about it, when it was formed, whether it is indigenous or came through glacial influence. He observes the clouds, the trees, the water, the fauna and flora; whether he is in the woods or fishing, he can always tell you something interesting about common place things. He seems to have studied well-nigh everything, embryology, bacteriology, histology, pathology, mineralogy, meteorology, metallurgy, zoölogy, etc. Once when I visited him, he showed me drawings of earth-worms, also histological specimens of the same. It has been his custom to have a number of dissimilar studies on hand at the same time. While living in Jacksonville, those subjects not especially bearing on his profession were presented to the Jacksonville Microscopical Society or to the Literary Union, the latter the most learned society of its kind in the west. Its members were from the faculties of Illinois College, Jacksonville Female Academy, the ministers, lawyers and physicians. Jacksonville boasted of its physicians' club, its microscopical and other scientific societies, in all of which Dr. Black was one of the most active members. I want to tell you a story about his great book, "The Formation of Poisons by Microörganisms." Dr. Black was seated in his study one summer day, the door of his office was open,

Fig. 14. **Dr. Black out "exploring" among the rocks about Duluth.**

he was conscious, though he did not see any one enter, that some one had entered the room. He turned around and there stood before him a fine, scientific appearing man. He may have been a great physician, or what not; I do not know. He said, "Are you Dr. Black?" Dr. Black answered, "Yes." "Are you *the* Dr. Black?" Dr. Black replied, "I am Dr. Black." "Are you the Dr. Black who wrote "Formation of Poisons by Microörganisms?" Dr. Black replied, "I am." "Well, the stranger said, "I have come much out of my way to shake your hand, and to congratulate you on having produced the greatest book of the kind on this subject." The man immediately turned about, left the office, without another word; Dr. Black has not the slightest idea to this day who that man was.

During Dr. Black's time of poor health, I persuaded him to come over to Quincy, and spend a few days with me. I was always a water dog. I used to sail much. Early Sunday morning we went down to the river and I got the Doctor into my sail boat and up the river we went. When I had showed him how to manage the sheets and the rudder, I suggested that he take the boat, which he did. We sailed all that day and when we got back, he could give me pointers in sailing, so apt was he in learning. This lead to his designing and building a sail boat in which he spent his vacations, sailed and lived, fishing and writing as his taste directed. He sailed the Straits, North Channel, about the "Soo," and the Les Cheneaux islands. Here the great "Black's Dental Anatomy" was born. These outings on the water greatly benefited him. He made a great reputation among the Indians and

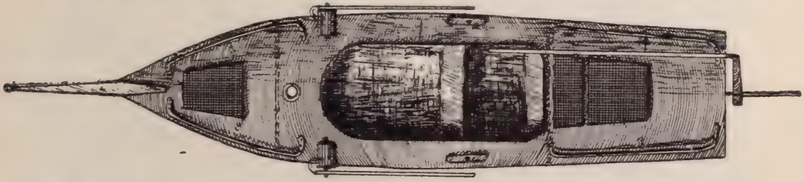


Fig. 15. Pen drawing by Dr. Black, one of his sailboats, the "Microbe." This boat was built to Dr. Black's design and was built for two persons for cruising. It was 18 feet long and 4 feet 6 inches beam, sloop rigged, and had starboard and port leeboards instead of a centerboard. This permitted the use of the cockpit as a bunk. There were watertight compartments fore and aft. The forward compartment was used for the storage of provisions, the aft compartment for clothing. There was also just back of the cockpit a small metal-lined well, covered by a separate hatch, containing two oil stoves. Several boards were placed across the bottom of the cockpit to support the bedding. These boards were of the proper length to deck over the cockpit, and when so placed were covered by a special oiled canvas, which made the entire boat watertight and practically unsinkable in any sea. Two of these boards were also equipped with folding legs and an arrangement for fastening them together to make a table for use on shore. Two folding camp chairs, a tent and much other equipment was carried. Dr. Black kept this boat at Petoskey, Mich., from which point he sailed the waters of Northern Michigan. Huron and the Straits for fifteen summers, from 1877 to 1891.

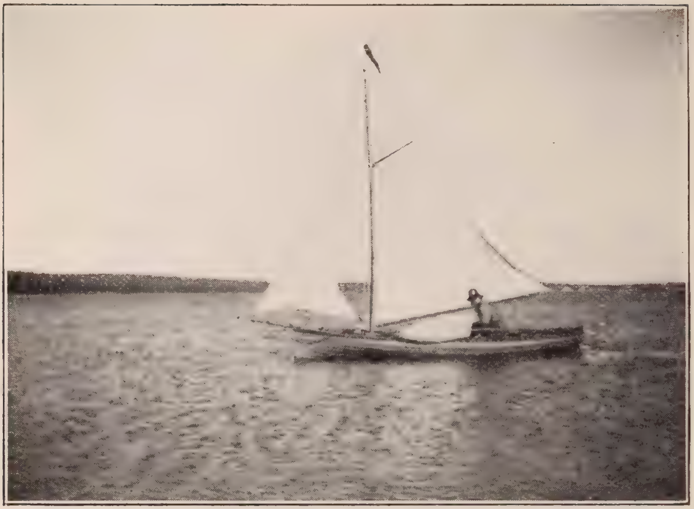


Fig. 16. Dr. Black sailing in the "Microbe" near Petoskey, Mich.

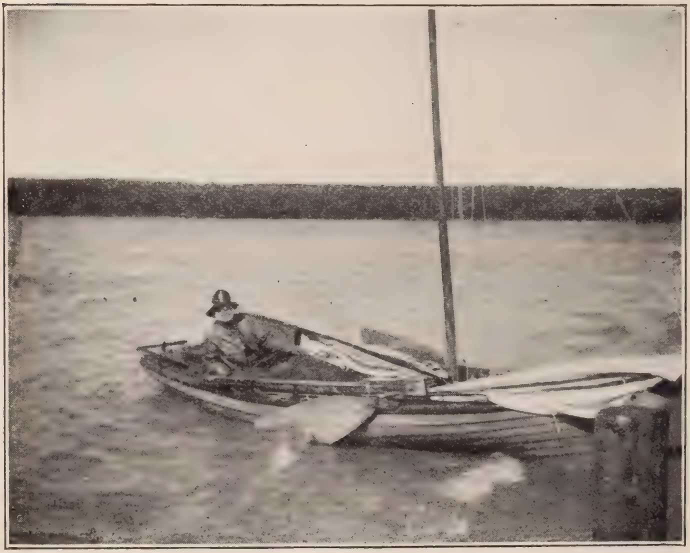


Fig. 17. Dr. Black in the "Microbe" at Harbor Point, Mich., after running in through a heavy sea, in returning from Lake Huron. Dr. Black has his slicker suit on, and it will be noticed that he has his "oil deck" lashed down over the forward end of the cockpit and drawn up over his lap, so that no water would be shipped from seas that broke over the boat. The leeboards, which were used instead of a centerboard, are shown in this picture. When sailing the board that was on the lee side of the boat was turned downward into the water, and served the purpose of a centerboard.

fishermen in these parts as a bold and daring sailor. Dr. Black tells a good story on himself while up there. He was conversing with a very old Indian; the Doctor asked the red man "How old are you?" He replied. "About ninety." He said to Dr. Black "How old you?" The Doctor asked "How old do you think I am?" The Doctor had his hat off, exposing his bald head. The old Indian looked him over, said, "Hair gone, 'bout hundred." (Laughter.)

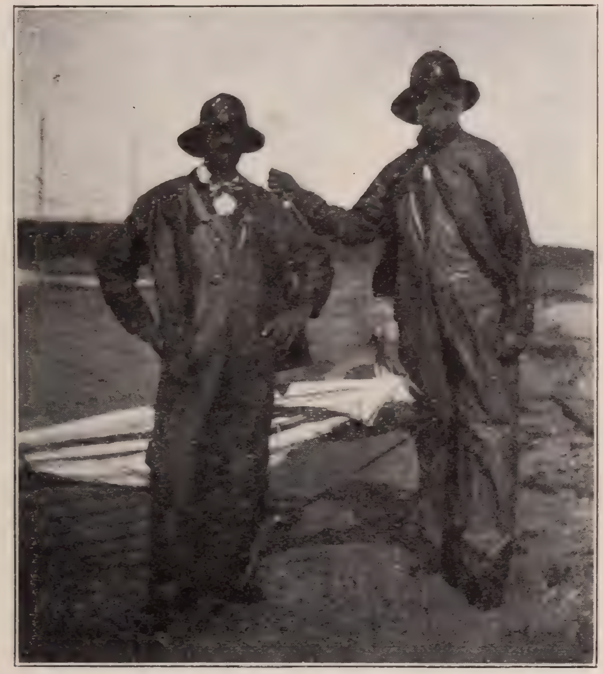


Fig. 18. Dr. Black and his companion, W. N. Filson, in slickers. This picture was taken with a camera to which Dr. Black had attached a clock mechanism to "press the button." After the camera was focused and set the clockwork was started and so arranged that it would press the button in one-half or in one or two minutes, as desired. Thus Dr. Black could take this picture without having a third party to operate the camera.

Before I left Waverly, I had gotten a taste for surgery and Dr. Black encouraged me to push my studies in that direction. After going to Quincy, my surgical work grew and I had the good fortune to have a large number of jaw fractures to treat. I told the Doctor about these, when he said, "you must write a paper for the Illinois State Dental Society on fractures." I said "Unless I have illustrations, such a paper will not be well received." He said, "you write the paper and I will illustrate it." So I prepared the paper and took it over to him. We went over it and agreed on what was necessary to illustrate it. He set to work and after a time wrote me. "The pictures are ready, come over and see what you think of them." You may imagine my surprise to find that this busy man had found time to make forty life-size water colors for me, illustrating every part of my paper. The pictures were so fine that it made me feel that the paper was not good enough to go with them. I rewrote the paper several times, trying to bring it up to the pictures, but fear I never succeeded. Those pictures today are the best and really the only complete set of good illustrations of the subject. They were copied in Dental journals all over the world.

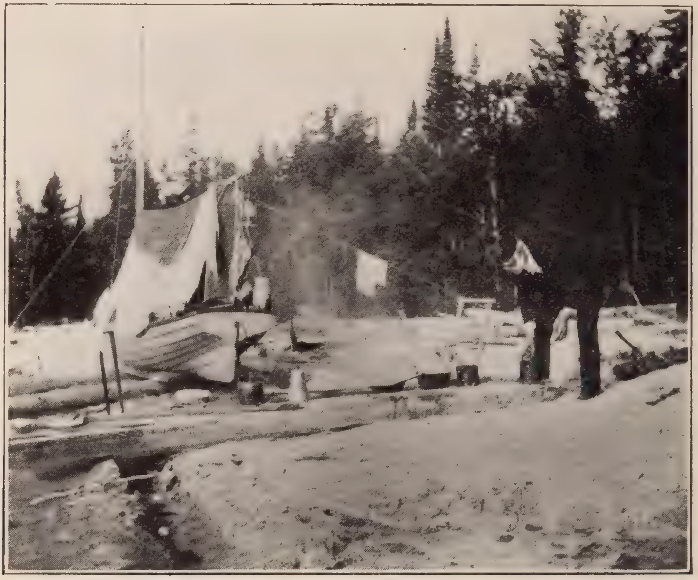


Fig. 19. Dr. Black preparing breakfast. Dr. Black's boat was small enough that it could be skidded out of the water on a couple of logs and beached for the night when it was not desired to sleep at anchor. The boom, with the mainsail and gaff lashed to it, is hoisted on the mast and propped up at the stern to support a tent cover. In this picture the oil deck which fits over the cockpit is shown straddle of the "ridge pole" as an additional protection in rainy weather.

In 1882, I think it was, the Illinois State Dental Society met in Rock Island. I asked Dr. Black to accompany me from Quincy by river to the meeting. We took passage on a stern wheel steamer. When about half way on our journey, the boat met with a mishap in breaking one of her hog chains, a support, a sort of a truss, running

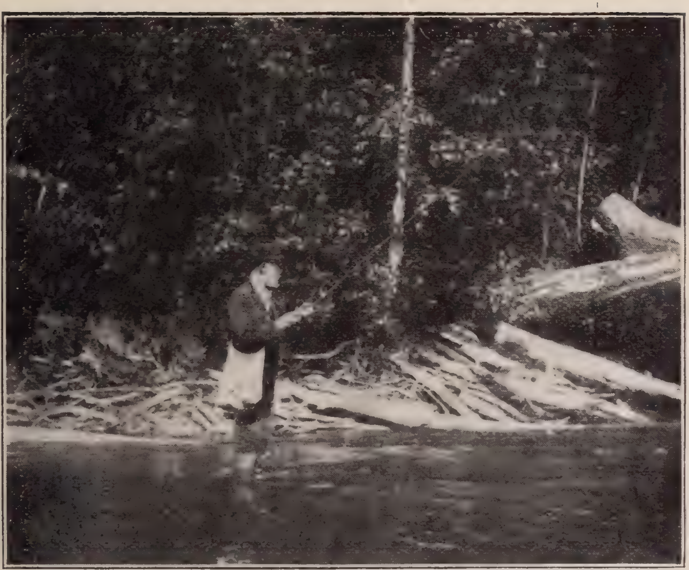


Fig. 20. Dr. Black trout fishing in Carp River, Northern Michigan.

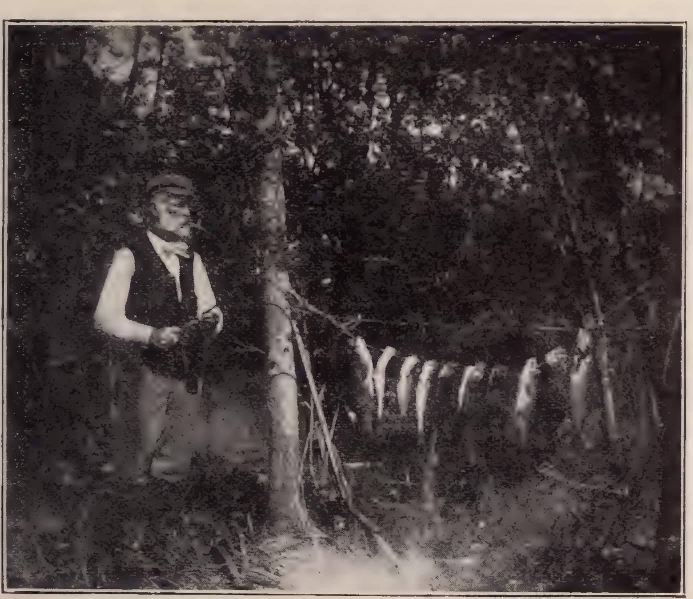


Fig. 21. Dr. Black and ten black bass which he caught in the Wisconsin River within thirty minutes with a single rod in September, 1897. The ten fish weighed 42 pounds.

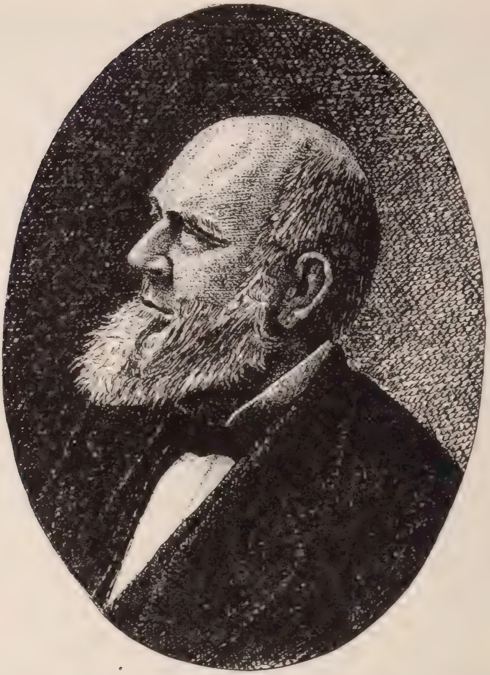
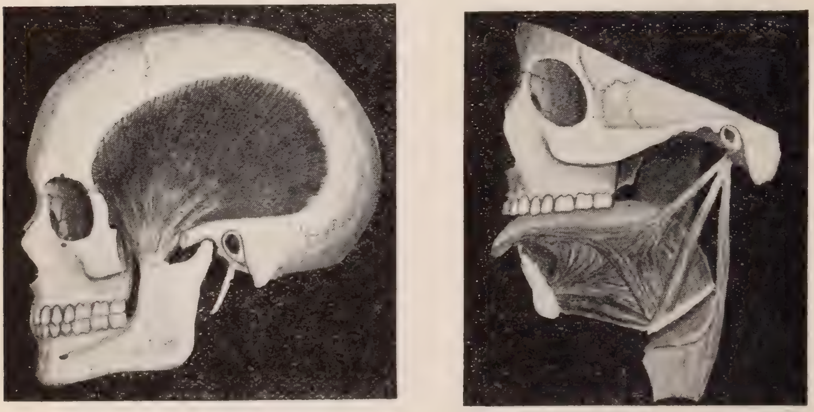
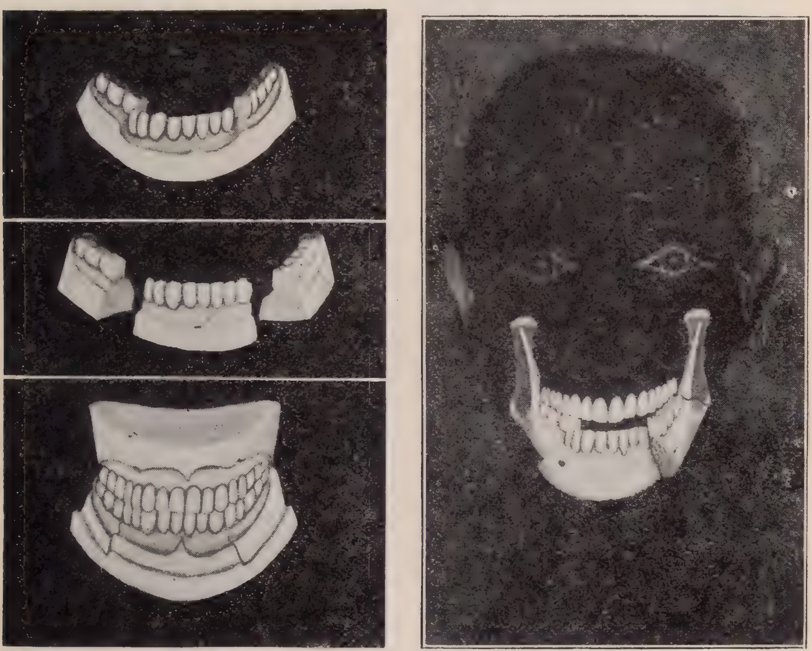


Fig. 22. Pen portrait of Dr. David Prince, of Jacksonville, Illinois, made by Dr. Black. Dr. Prince was one of the most prominent surgeons of Central Illinois from about 1860 to 1892, and was a very close friend of Dr. Black.



Figs. 23 and 24. Copies of two of the forty illustrations in water color on charts 22 x 28 inches, made by Dr. Black for the writer's paper on Fractures of the Inferior Maxilla, Transactions Illinois State Dental Society, 1881, p. 67; also Ohio Dental Journal, Vol. 2, 1882, pp. 14, 57, 112.

from near the bow to the stern. We landed and a number of efforts were made to repair the damaged chain. The captain and mate fussed and fumed for hours in futile efforts at repair. The boat had sagged on the damaged side and they could not get sufficient power to straighten up the hull, so that the two ends of the chain could be united. Dr. Black said to me, "They do not go about it right, if they would back the wheel on the injured side, near the shore in shallow water so that this side of it would rest on the bottom, it would act in the same manner as though there was a jack under it." I saw the point and said, "Tell the captain." He did so and the boat was backed up and sure enough the sag went out and the chain was easily tightened up and in a short time we were on our way.



Figs. 25 and 26. Copies of two other illustrations for paper on fractures.

Dr. Black not only paints pictures, but he makes drawings from conceptions in his brain. I show you a picture he made with his pen of Dr. Prince, the then eminent surgeon of Jacksonville. I knew Dr. Prince well, and this is an excellent picture of him. Many of you will remember the different instruments he has made, all made from his own designs. For instance, the instrument for testing finger pressure, and the one for testing mallet pressure, the instrument for determining the amount of force necessary to crush different foods, and the instrument for measuring contraction and expansion of amalgam and cement. I show you a picture of Dr. Black's machine for section grinding; such a machine was never thought of before, until Dr. Black made it himself.

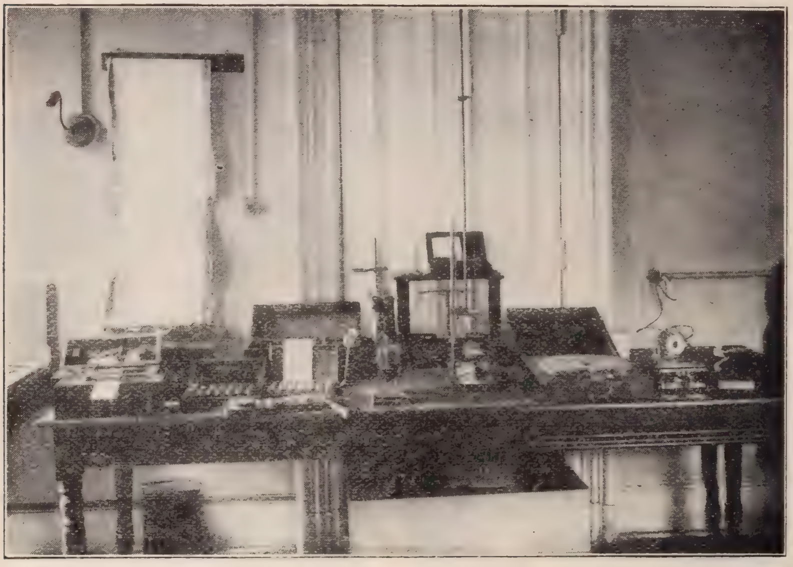


Fig. 27. Some of Dr. Black's scientific instruments, made either by him or from his designs. To the left at the back of the table is an instrument for testing the "flow" and crushing strength of amalgam and other substances. In front of it is the tupto-dynamometer, for measuring the force of mallet blows; and in front of this is the manu-dynamometer, for measuring finger power, or pressure, as used in inserting gold foil by hand pressure. Next to the right, at the rear of the table, is a box for the binocular microscope, and in front of this are two cases of steel tubes used for testing shrinkage and expansion of amalgams, cements, etc. In front of these is the phago-dynamometer, for measuring the amount of force required to chew various foods. Next to the right is the binocular microscope. This is the instrument used for examining test amalgam and cement fillings for expansion and contraction. Next to the right, at the back of the table, is a pair of balances, to which Dr. Black added a number of special appliances. In the box on top of the case containing the balances is a case containing the gnatho-dynamometer, for measuring the strength of the bite. In front of these is the falling weight apparatus, used alone and in connection with the tupto-dynamometer for determining the force of mallet blows. A brass cylinder (mallet) may be seen resting on a spring stage at the top of the picture. Next to the right is the amalgam micrometer for measuring shrinkage and expansion. To the right of this is an electric oven.

Dr. Black's home was always open to the dentist seeking knowledge; it was the dentist's Mecca. He received everybody in the same hospitable spirit. He was always modest about everything he did. (Applause.)

Dr. Black has been provident. He has educated all of his children, having given them college educations and his two sons professional educations. Dr. Carl E. Black is a noted surgeon in Jacksonville, with a large practice, a worthy successor to Dr. Prince. You know what Dr. Arthur Black has done. (Applause.) Dr. Black has paid out thousands of dollars for purposes of investigation and inventions. He has spent his money freely in this particular. He is also a real estate man. He has some fine business property and also other property in Jacksonville, which is remunerative. He has one of the best farms in the State of Illinois, two hundred acres in the richest part of the state, which he conducts himself and profitably. Dr. Black does not need to teach school. He does not need to labor in any way. He works as he does because he loves the work and because he loves his profession.

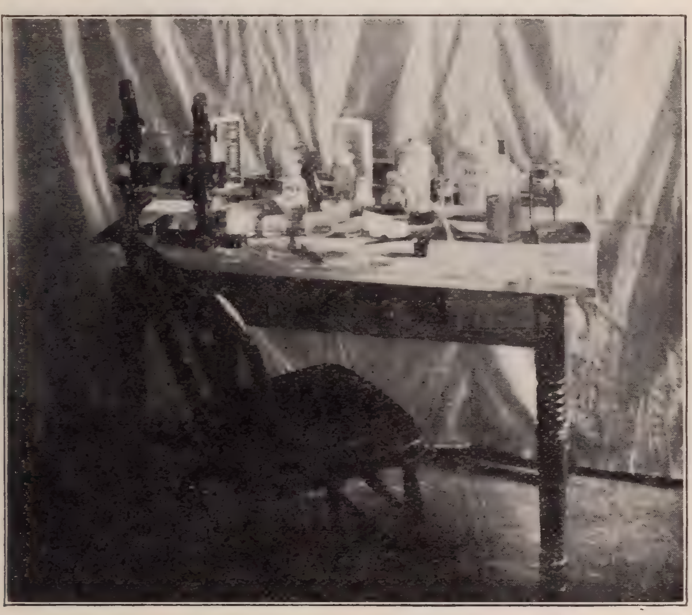


Fig. 28. A table in Dr. Black's scientific laboratory, when he was selecting specimens of ground sections of teeth to illustrate his writings on the pathology of dental caries.

In conclusion, I want to say that I, as a dentist, owe more to Dr. Black than to any other living man, and there is not a dentist here tonight who owes him much less than I do. (Applause, followed by "Hear, hear.")

When I lived in Quincy, Dr. Black at that time had a brother living at Clayton, Illinois, who was a prominent physician there. I saw him occasionally when he came to Quincy. He was quite a politician and once when I met him in Quincy, he said, "You know my brother, G. V. Black." I replied, "I do." "Well," he said, "if G. V. would let investigations alone and attend to his legitimate practice, he might amount to something. (Laughter and applause.) I went down to Jacksonville a short time after this and told Dr. Black that I had met his brother at Quincy. He said, "I suppose he was on some political business?" I replied "Yes, he was attending a convention." Dr. Black then said, "Well, if my brother would let politics alone and attend to his legitimate practice, he might amount to something." (Roars of laughter, followed by applause.)

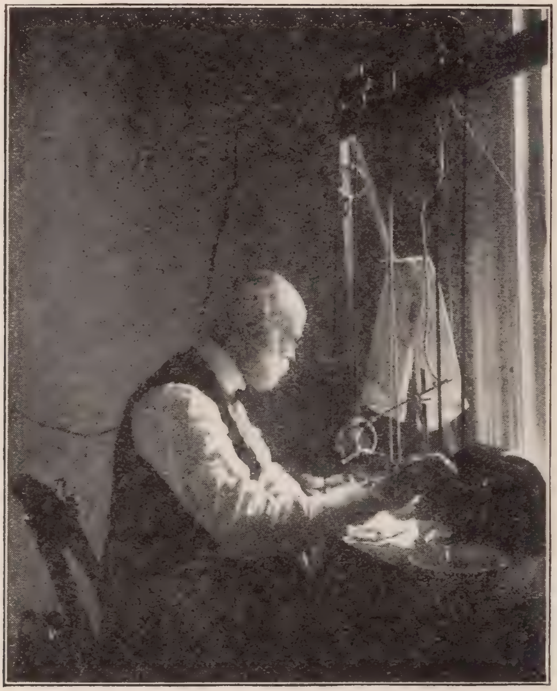


Fig. 29. Dr. Black at his section grinding lathe. A tooth is sawed into sections on this lathe; the sections are then mounted on a disk and the machine adjusted so that it will grind the sections to any desired thinness—to two one-thousandths of an inch or thinner—and will stop automatically when the desired thinness is reached.

The Toastmaster: The next toast will be responded to by the Commissioner of Health of the City of Chicago. Dr. Evans was appointed to this position three years ago and in the interim the death rate of our people has been greatly reduced. The spread of contagious diseases controlled to a degree never before attained in a city of like population. (Applause.)

He has done more to further the development of the idea of the examination of our school children than any other health commissioner of whom I know. Dr. Evans has done these things for the common people of our city and he has accomplished his work in such a manner as to reflect nothing but great honor upon the entire medical profession.

What Dr. Evans has done for his own profession and for the people in Chicago is but a part of what he is willing to do for them and us. By us I mean the Dental profession. Our profession has for a long period been desirous of having the mouths of our school children examined by competent dentists under the supervision of our society, and the children's parents made fully acquainted with the conditions found.

Fig. 30. "Walnut Lodge," summer cottage on Dr. Black's farm.

The plan in full should not and could not for lack of time and natural fitness of things be entered into on this occasion, but it is appropriate that those of you who do not know should now learn that the Dental profession of this country has a medical friend occupying the position of Commissioner of Health, who is not only willing that our ambitions be realized in reference to the examination of these school children, but is eager to assist us to his full official capacity.

Because of his great worth, we hope he will never leave his present position, but if our Government should so enlarge its Cabinet as to include a Secretary of Health for its people, as it has for cattle and trees, this community would find our profession united in the demand that Dr. Evans' fitness for this position be favorably considered by our president. It is with great pleasure that I introduce to you a brother medical practitioner who is one of dentistry's friends and great admirers.

THE PROFESSIONAL MAN'S DUTY TO HIS COMMUNITY.

Dr. William A. Evans, Commissioner of Health.

Mr. Toastmaster, ladies and gentlemen: I notice that I am to respond to the toast "The Professional Man's Duty to His Community." The particular part of this subject about which I wish to speak, is the relation of the dental profession to the infant, the younger members of the community, and yet I cannot proceed toward this narrow view of the subject without spending a few moments of time on the subject in its broader aspects.

It has seemed to me that the members of the medical profession, and I class you as such without any reservation whatsoever (applause), in times past have not fully understood their relation toward the community and from this failure, largely a failure on their part, there has proceeded something of harm for the community and for the profession. Every man must discharge his duty toward the community according to his peculiar attainments, or as the darky said, "Accordin' to the gif's we has, we does the best we knows, and nobody don't 'spise a violet flower because it ain't de rose." (Laughter.) There are men who are peculiarly fitted to discharge certain public duties and there are other men who best serve the community by serving in a private capacity and sometimes men make these responsibilities and fail properly to valuate themselves or to valuate the community, and in consequence, there results a misfit.

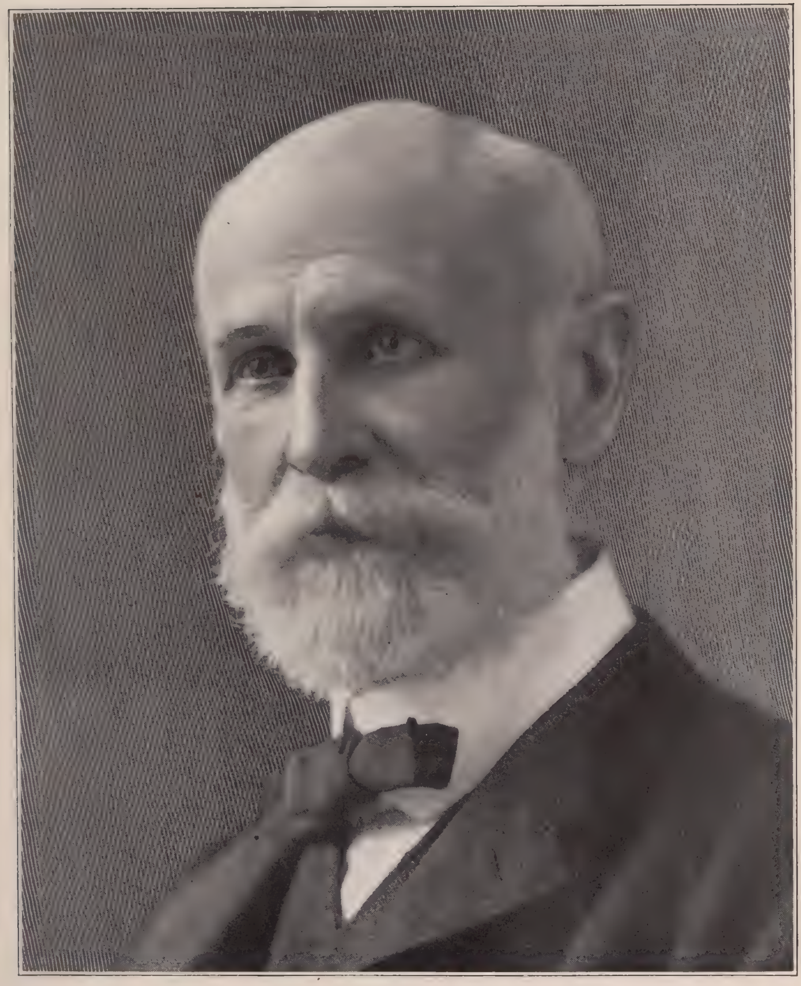
I have been astounded as I have listened here tonight at the amount of work that has been accomplished by Dr. Black. I have read this pamphlet which simply enumerates all the things that he has written. It occupies thirty-five pages of relatively closely printed matter and I know that this is but a small measure of what he has accomplished in the way of advancement in dentistry, because I believe that one can legitimately count as the writings of the man not only the things that he has written by his own hand, but also the things that his inspiration has served to have written by the hands of other men. (Applause.) And so this book of thirty-five pages is but a small part of the great procession of pages in which is set forth dental research and the advances of medicine and the advances of science—a procession of pages that reaches to every part of the civilized world—pages that cannot be counted by the tens or by the hundreds or by the thousands. And not only that, but they leave the imprint of a genius and his influence upon every scientific page that has been written in the last quarter of a century in the civilized world. (Applause.)

I am to be followed by speakers who are to speak along the same general line that has been outlined by Dr. Gilmer. It has been my privilege to participate in several banquets that have been designed along the same general lines as this. I was one of the committee that arranged the banquet for that splendid genius, Fenger. (Applause.) I believe that that banquet typified something more than a recognition of the genius of that man. I believe that it represented a partial passing of the day of professional bitterness, of the acrimony that has at times presented itself between and amongst the various members of our profession. It was a banquet given to a man during his life time by those who had been associates of him and in that particular, it represented a departure from other banquets in which there was a recognition of the merits of the man in order that posterity might have the benefit of that recognition; a recognition at the time when some part of its beneficient influence might be felt by that man himself, and I know that the result of that banquet was to soften and to sweeten the life of Fenger. I know something of more importance than that, and that was that this banquet not only softened and sweetened the life of Fenger, but it softened and sweetened the life of every man practicing medicine in this community. (Applause.) The influence of this man and of this banquet carried softness and sweetness far beyond the City of Chicago.

Gentlemen, you are doing a fine thing tonight; you are doing a great thing in honoring Black, and Black deserves to be honored. (Applause.) But let me tell you, you are doing another great thing, and that is, in honoring Black, you are honoring your profession, and you are doing something towards sustaining the life of every dentist in this community and in a large part of this country. After the banquet that was given to Fenger, there followed another to Senn, and then another to N. S. Davis. (Applause.) There was but one drawback—a drawback I trust that will not follow in this case, namely, we found that unexpected difficulty arose in the giving of these banquets, and that was, in a relatively short time after these banquets, the men for whom they were given passed away, and in consequence the honor has not been recently coveted. (Laughter.) I sincerely hope, gentlemen, as I am sure every one of you hopes, that this may not be the fate of Dr. Black. (Applause.) Now, gentlemen, if I wanted to make a really effective speech and leave it at that; if I wanted to set forth what I genuinely and honestly believe to be the very best thing that a professional man can do to discharge his duty toward the community, I could cite the life of Dr. Black, and leave the proposition there. (Applause.) But I was asked to tell you something of school inspection in the City of Chicago; to tell you something of the condition of childrens' teeth as we believe they are found not only in this city, but in all parts of this country—a belief that is founded upon the facts as we have discovered them here, and as we read that they are in all parts of this country, and of all other countries, and then I wish to discuss with you for a few moments a subject that I have had reasons to learn lately, is largely in your eye, a matter to which you have been giving serious thought, namely, the important question of the duty of the professional man toward the community.

Our school inspection was started in the City of Chicago in 1908. It was continued for a relatively short time. The history of the medical profession has been this: We have swung like a pendulum back and forth from extreme to extreme, and I imagine that in this we have not differed largely from those who are engaged in other avenues of activity. Primarily, medicine was an art, and it sprang from the barber, and there was little of it save the art of medicine. And then there grew up the great school of speculative philosophy, in the exercise of whose work there was no practical exhibition of art. There was a swinging of the pendulum from the extreme of materialism to the other extreme of speculation, and then following this great line of speculators, there came a group of men, such as Morgagni and Virchow, who planted speculation still more securely on its feet. Our profession, then, swung back again toward the material, and at a certain point in its evolution, your branch of this profession split off as a protest against idle speculation, and quite naturally you ran to the other extreme, and were composed in the main of men who devoted themselves to the art side of your profession. There is a tendency, perhaps best seen at the present time, toward the swinging back of the profession from the other side to which the pendulum swung. The point I wish to make is this: In all ages there have stood men with better judgment and with a better perspective than the average of men that we find here and there—men who have devoted their energies towards the development of science in its various aspects. I believe the story that Dr. Gilmer has told you, has convinced you, if you needed convincing, that that has been the position of Dr. Black, that he has always stood as a man with his foot on the other side of this question—a man who understood and appreciated the value of the speculator, of the researcher, of the student, and, at the same time, has never lost sight of the value of the men who had a capacity for judging a pathology as they saw it in the living; who had the capacity to exercise the art of the profession, and Black, the speculator; Black the dreamer; Black the student; Black the man of research is no greater than Black the deviser of instruments; Black the designer of methods of doing things, and Black the artist of the dental profession. (Applause.)

Our school inspection was not an original idea. It came as everything else has come in response to an over-shadowing demand. That branch of the medical profession with which I am connected was forced to see that the teeth of children were all important; that children had teeth which were improperly developed, and teeth that had decayed, and that these children were not getting a fair chance. I have been, rather unusually I take it, in touch with your branch of the medical profession, and saw clearly this relation. School inspection, as I have said, was started in Chicago in 1908, and it was further developed in 1909, and now I am going to give you a few figures of 1909. I may say, that our school inspection bureau is in charge of a man from Jacksonville, Illinois, Dr. Rawlings, and these figures were prepared by him. The number of physical examinations was 123,897 last year. We found that 63,199 of these children were in some measure defective. Of this 56,000 were native born, 6,699 were foreign born, and one or both parents were foreign born in 45,455, nearly all. The more important defects found were these: We found that 44,000 of these 63,000 children had teeth that were defective. Of the other defects, 21,000 had defective vision; 23,000 were of the rachitic type, and 1,433 had orthopedic defects. The proposition I will speak of is this: Of these 123,000 children, 63,000 were found to have some kind of physical defect, and of these 63,000 approximately 44,000 had defective teeth. You will understand, gentlemen, that these examinations were not made by dentists; they were made by physicians, and, in all probability, from the standpoint of the dentist, the number of children found to have defective teeth, would have been considerably larger. Various statistics have been furnished by investigators in various cities, and this does not mean that there is any material difference in the number of defectives in these different cities. It rather means to my mind that there was a different point of view on the part of those who conducted the examinations in these various cities. A certain amount of allowance has been made for the foreign population, and for those parts of the country from which the foreign population is brought. But the fact remains that there will be relatively the same percentage of defectives found. What I mean by my last statement is this: We find that those people who neglect their children, are the Slavic, and the Slavic population is quite large, amounting to 150,000, but the Slavic population in the City of Boston was so small as to be negligible. After allowance has been made for this great difference in the point of view of the examiners rather than in the tables themselves, it stands to reason that these 44,000 children that were discovered in the City of Chicago during last year to have bad teeth are not having a fair chance. And why? I do not believe that the harm that is being done is largely through the neuralgic conditions that ensue from this bad condition of the teeth. It is Nature's method of showing that something should be remedied, and I take it, that it is a call on the part of Nature to take heed. There are exceptions here and there, but the rule stands, and it is a call of Nature that should be listened to. I do not believe that the major part of these defects is from infections that determine suppuration. There is a call on the part of Nature that is so persistent and so striking, that it should receive attention. The major harm that is being done is from those children that have decayed teeth, these decayed teeth being harbingers of bacteria that slowly poison, and as the result of that slow poisoning there is in many instances, enlargement of the neighboring glands, and those glands stand as vicarious sacrifices protecting the remainder



G V Black

of the body from the invading poison. And there is Nature's route in this group of children in which the poison goes by all sentinel glands and finds its way into the interior of the body. It is relatively easy, gentlemen, to see how the teeth decay and also how the accumulation of filth takes place in those decayed teeth. It is not difficult to see the enlarged glands, enlarged by reason of the fact that they have offered themselves as a sacrifice for the protection of the remainder of the body; but it is far more difficult to see the reason why a child that is pale or anemic is anemic. Absorption is taking place from these infected areas, and the influence of that absorption is felt not only in the neighboring glands, but also in this group of physical conditions that are far removed and the relation of which is difficult to understand. It is not only difficult for the medical man to understand this, but it is far more difficult for the family to understand it. There is a group of conditions which, I believe, it is well worth while calling your attention to.

For a long time, in watching cases of scarlet fever, in order that the community might be protected, we watched the skin. We have learned now that it is much more essential to investigate the condition of the mouth and the nose and the throat, and the teeth. All these things should be watched. (Applause.) We turned loose lots of children from the hospitals in this city when scaling had stopped, and then we have had them go home to their families, shortly after which other cases of scarlet fever came back to the hospital from those families. And that experience has been duplicated all over the world, and now we know that a large number of those returns is due to the causative agents of scarlet fever of a nature that had not been determined, and these are found lingering around in the follicles in the tonsils, in cavities in the teeth, and in other neglected and obscure recesses in connection with the mouth and nose.

A while ago, we had an epidemic of diphtheria break out in a Chicago school. We could not run it down. We have learned this, that there is not so much danger of diphtheria from the child who is actively sick as there is from the child who has not been sick at all, but who harbors diphtheria bacilli. We went through that school and found nine children, and apparently well children at that, who had active diphtheria bacteria in their mouths. They were not sick themselves, but they were capable of inducing sickness in others, and those diphtheria bacteria may remain latent in the nose, in the throat, in the tonsils, and in the cavities of the teeth, and that is something that is not fully understood even by practitioners of medicine who do not know dentistry. (Applause.) I believe, gentlemen, that if you dentists were better doctors, you would be better dentists, and I believe that if doctors were better dentists, they too would be better doctors. (Applause.) It is difficult for the doctor to see the relation of bad teeth to physical development, and to give a fair chance to the child. It is far more difficult for the parents to see it. We have discovered 45,000 children in the last year in the City of Chicago with bad teeth; but that is not the most difficult thing we have had to contend with. We have found 100 school inspectors who discovered these conditions. Those inspectors have made physical examinations and have examined for contagious disease. Whenever they discovered bad teeth, they have made a report in triplicate, and one copy has gone to the parents, one to the principal of the school, and one to the Department of Health, and that report has set forth not only that the child has bad teeth, but that something should be done to rectify the condition. You would think that any self-respecting parent would heed that warning. Let me tell you, it is the exception that they heed that warning, and so we found it was necessary to provide additional machinery, and the first thing provided was a nurse. A large part of the duty of that nurse is to go to the home of the parents and to persuade them to have conditions corrected, and yet, let me say to you, that a large number of the parents resist the corrective influence that proceeds from school recognition of the fact that children are defective. A large number of parents will not heed the advice of the school principal, the warning of the Department of Health, nor the coaxing of the school nurse; hence, the very large percentage of failures in reference to the matter of correcting defects in the teeth. Some additional machinery must be found in order that results shall be had.

In the Health Department of the City of New York, they have, and are showing a disposition to abandon caring for the teeth of children, because decay of them is so common, and are concentrating on educational work to prevent decay of teeth in these children. (Applause.) Now, gentlemen, having elicited your applause, it is rather ungracious for me to say that I do not believe, as a matter of judgment, it is a movement in the right direction. All over Europe, and in many parts of this country, there are either private, philanthropic, municipal, or Governmental agencies that supply this aid to those who are not in a position to secure it for themselves or for their families. Why is it not a proper agency? There is an important reason for it. I do not believe that we will get results by simply educational influence, aside from aid rendered. I know that with a thing like this, in which it is so difficult to get results, that we are all dissatisfied. I do not believe that there is a Department of Health anywhere in any country that is satisfied with the results that they are getting; but if you say to the parents, you must keep the teeth of your children clean, and leave the proposition simply as a didactic one, it is a dead moral certainty that it will not be done. There must be demonstration. You will understand, gentlemen, that these defective children in the main are in the homes of people that are away below the average of our civilization. They are people who do not fully understand their relations as parents or their relations as citizens to the community, and before you get results you have got to appeal to them, not only by an appeal to the intellect, but by supplementing that intellectual appeal by an actual demonstration. You are not going to get these people educated to the necessity of preservation of the teeth by simply telling them so, and it is not going to make any difference that they are being told so by the Government or by any arm of that Government. But we must in some way find an agency that will say to the people; you must keep the teeth of your children clean, but, at the same time, prove to them the advantage of keeping them clean by cleaning them. Say to the people, the teeth of your child must not be allowed to be full of cavities, but, at the same time, prove to them the beneficence of that care by filling these cavities. (Applause.) I believe the only way to accomplish that, that I can see, is to make an effort to divide the people into those who are able to pay and to send those children that are able to pay, to dentists who will work for them for pay, and then to let those who work for pay recognize the fact that they incur an obligation, and that obligation is to make organized provision for those who are not able to pay, in order that they may have the aid that they are sorely in need of, and which they cannot now get, because they are not able to pay. (Applause.)

You are enjoying, gentlemen, a great heritage. You have inherited the work of the men that have gone before. You are partaking freely of the things that have been given you by the great scientists and the great artists of your profession. You do not put in a filling; you do not use an instrument, and pay full value for what you have learned. You are sponging, in some measure, upon every man who has contributed to the common stock of knowledge of your profession. You incur an obligation to leave that profession better than you found it, and every man, who does the things that Black has taught him how to do, incurs an obligation to advance Black's profession and leave it more secure than other men or than Black found it. And one of the things I want to suggest to you as my final thought tonight, is this; you cannot do a better thing than in an organized way to demonstrate to the people of the communities in which you live and in which they live that good teeth are a necessity for good living; that good teeth are a necessity for proper physical development, and that the child that goes through youth with bad teeth, will grow out of youth into manhood with improper bodily development, and from it, there is liable to follow improper mental and improper spiritual development. (Applause.) You cannot simply talk about it, and leave it at that, but you must convince the community of it, and the best way for you to convince the community of it is to educate the poor children of the slums, the poor children with a poor chance for life, and then through your agencies and through your efforts, enable those children to develop into fine physical specimens, and that is the best proof you can offer to the community that the dental profession is not a luxury, but is a necessity; is not a necessity to the individual, but a necessity to the community. (Applause.) Let me say to you, that a lot of these poor weak children die each year. Lots of them struggle through their school age, and then develop into men with the rights of men, with the right of determining the laws of the community, with great legislative capacity, and great legislative influence. They develop into men who influence juries and make judicial decisions, and that, gentlemen, is the most expensive thing that any community can have happen with these poorly developed children. The community has not understood this. The people who study society have not understood it, but those who are studying society are coming to understand it, and as they come to understand it, they will come to appreciate the importance of it when brought in touch with circumstances and conditions such as I have mentioned, and if you demonstrate the fact that in this great problem that must be worked out, if America is to live, that you are an integral part, that you are a necessary part of the state, and cannot be prosperous as dentists unless you clearly understand the duties that devolve upon you. When you fully understand these things, then your future is assured, and dentistry will have been advanced. (Loud applause.)

The Toastmaster: The next toast on the program, "The Influence of Dr. Black's Teachings Upon the Men of the North," was to have been given by Dr. E. K. Wedelstaedt, of St. Paul, Minn. I regret to announce that, on account of a death in his family, Dr. Wedelstaedt is prevented from being with us.

While the next toast reads "My Country and My Profession," and is to be responded to by a Canadian, I wish to assure him that we never look upon any Canadian dentist as a foreigner (applause) nor does the Chicago-Odontographic Society, Dr. Thornton, hold that the interests and ambitions of the dental profession of your country is a thing apart from the interests and ambitions that bestir our own profession. For as a Boston painter and poet has said, "We are one in blood, we are one in language, we are one in hatred of oppression and we are one in love of liberty."

So then, Dr. Thornton, before asking you to respond to your toast, let me assure you that the dental profession of your country and of our country are bound together by gold chains of mutual affection and mutual respect. And two professions so joined together, I am firmly convinced never will by man be put asunder. (Applause.) It gives me great pleasure to introduce Dr. Thornton.

MY COUNTRY AND MY PROFESSION.

Dr. A. W. Thornton, Toronto, Ont.

MR. TOASTMASTER, Dr. Black, Ladies and Gentlemen:

When Dr. Logan suggested to me the subject with which my name is associated, my first thought was, "a strange combination surely." But a few minutes' reflection convinced me that the two ideas are very closely related.

Any man speaking either of his country or his profession would invariably speak of that which was great or good in them, and the greatness both of a country and a profession, whether law, medicine, theology or dentistry, rest on a common foundation, the character, the moral integrity of great men. I care not what your ideas may be concerning questions of theology or the inspiration of the sacred writings; one thing is certain, no words can be found in any literature, sacred or profane, truer than these "Righteousness exalteth a Nation," and righteousness is not an attribute of brick and stone and mortar, not an attribute of gold and silver and stocks, not an attribute of forest and mine and river, no, righteousness is an attribute of men, created in the image and likeness of an intelligent beneficent First Cause. Will you permit me, just a reference or two, to illustrate the relation which men bear to the country of which they are citizens.

To be very brief, Rome at one time was great, but Rome declined and fell. When was Rome great? Why did she decline and fall? Rome was great when her citizens were men of high ideals, when her leaders were men of the highest moral integrity, men in whom the common people had the most perfect confidence, men who put the honor of Rome above every individual, or selfish consideration, when "Romans in Rome's quarrels, spared neither land nor gold, nor son nor wife, nor limb nor life, in the brave days of old." Why did Rome decline and fall? Because her people grew luxurious, licentious and lecherous.

It was true then, it is true today, what Goldsmith says,
"Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men decay."

In modern history we look back to the beginning of the last century and one man has almost the whole world at his feet. Kings and princes are the creatures of his will, and thrones are his gifts to those fortunate enough to enjoy his favor. His imperious fiat goes forth, "There are no Alps," and his legions pour into central and northern Europe, brushing aside difficulties that had previously been looked upon as insurmountable. (Applause.) But see him after Waterloo. On the deck of the Bellerophon Napoleon stands as he is being borne to his Island Prison. First with naked eye, then with a glass he watches the shores of France as they slowly recede from his sight. Then as the last faint outline of his country is lost to vision, he sinks almost unconscious on the deck, and is borne to his room. Why the hopelessness, why the despair? Do you wonder? As you think of the shattered hopes, the crushed ambition, the impoverished country, the wail of countless thousands of widows and orphans, almost all of one continent and part of two others, incarnadined with the blood of thousands of brave men, wantonly spilled, I say do you wonder? Listen to Colonel Robert G. Ingersoll, that Prince of American platform speakers, as he says, "A little while ago, I stood by the grave of the old Napoleon, a magnificent tomb of gilt and gold, fit almost for a dead Diety." Then Colonel Ingersoll traces the career of the great soldier, his marvellous victories, his crushing defeat, and concludes by saying, "I would rather have been a French peasant and worn wooden shoes and gone down to the tongueless silence of the dreamless dust, than to have been that imperial impersonation of force and murder." (Applause.)

Men, believe me, there is a vital union between the greatness of any nation and the nobility of character of its citizens, and neither can exist without the other.

And now, will you permit me to present a brighter and happier picture, the very antithesis of that to which I have just drawn your attention. We are here tonight to honor and to show our veneration for a man whose life work has laid the profession of dentistry and indeed the whole civilized world under tribute.

Mr. Chairman: It would be very much out of place if I were to attempt anything like a eulogy of the life of the man who is our honored guest this evening, or even to try to give the very briefest resume of his stupendous life work. But I may be permitted to speak of the class of men of which he is so honored a member. When a man has reached the top of the ladder, in any sphere, we who crowd the lower rungs, look up in awe, sometimes, perhaps, with a shade of envy. It is natural to desire the honor, the good will of our fellowmen, and we are apt to think that those who occupy these honored positions, possess some peculiar kind of genius, or have had some peculiar run of good luck or have had exceptional opportunities, or advantages.

We forget that,

"The heights by great men reached and kept,
Were not attained by sudden flight,
But they while their compaions slept,
Were toiling upwards in the night."

There is no royal road to learning, there is none to real preferment and abiding honorable position.

I have heard something of the early struggles and labors of the guest of this evening. We all know the amount of work along various lines which he has accomplished. Think for one moment what such a life and such an amount of labor carefully done means. It means the absolute sacrifice of many of the pleasures which men count most enviable. It means long hours of exhausting toil, carried on for years. It means isolation from the social life of family, friends and even kindred spirits. It means life in a realm, where there are few kindred spirits, for each generation produces but few such men. The consequence is that such men must often crave companionship, must often be misunderstood. I believe that in a word, because of their inherent nature, because of the vision which they see and the work which they feel called upon to undertake, such men, must of necessity be, "Men of sorrow and acquainted with grief."

Is it possible, I wonder, for such men to escape the suffering, The Gethsemane, the crucifix, which seem invariably to be their portion. I do not believe it is. But the great thought remains, such men are the light of the world. One man toils and suffers, dies if necessary, but all the rest of the world is led into a better kingdom, a happier condition. And so, sir, I am so glad that this great gathering concluded their meeting to a close in so fitting a manner. If in the past our guest has felt, as he must have felt sometimes, the loneliness, the mental and physical weakness, which sometimes wrings from men the cry, "The burden is greater than I can bear," we come tonight not with our gold and silver, (too often we think we discharge our whole debt when we present our gold and silver), we come with the frankincense and myrrh, our gratitude, our esteem, our veneration, our love, we lay it all at the feet of our guest. Then say with sincerity, it is impossible to pay even a tithe of the debt we owe. (Applause.)

And yet even as I use the word honor, I am reminded of an event, memorable in the history of this great country. On November, the 19th, 1863, at Gettysburg, a number of your leading citizens were gathered to dedicate a portion of the battle field, as a final resting place of those who gave their lives, that the Nation might live. The great American, that greatest of all the great sons of this great State of Illinois, Abraham Lincoln, delivered there a short address, classic in its simplicity, an address that shall live until heroic deeds cease to stir the hearts or fire the imagination of noble men, and he used these words, "The brave men living and dead who struggled here, have consecrated it far above our poor power to add or detract. It is for us, the living, rather to be dedicated here to the unfinished work that they have thus far so nobly carried on." Will you permit me to borrow your great stateman's thought? It is not in our poor power to honor the man whom we are pleased to meet tonight as the guest of this gathering. His whole life, his whole unremitting, unselfish life work has begotten an honor to which it is impossible for us to add. It remains for us only to dedicate our lives to the work which amid many trials, and against great difficulties he has so successfully carried on. (Applause.)

You who have not forgotten your ancient history will remember the enmity that existed between ancient Rome and Carthage. You will remember the difficulties that confronted the great Carthaginian, General Hamilcar. Despairing of ever subduing his enemy, he took his son Hannibal, only eleven years of age, and in the temple of his gods, made him swear on the alter eternal enmity to Rome. Young Hannibal probably understood but little of the nature of the oath he was taking, but he lived and grew with that vow constantly in mind and it was Hannibal who, against mighty odds humbled the power of the Roman Empire. I would like metaphorically to grasp the hand of every man in this banqueting hall tonight, and to swear, not eternal enmity to any man or nation, but to swear to emulate the life of the man who tonight has placed upon his head, by his professional brethren, the laurel wreath of victory, and who with the great Apostle of the Gentiles can say, "I have fought the good fight."

Mr. Chairman: I bring to you the greetings of a thousand men practicing dentistry in the Province of Ontario, every one of whom knows, if he knows anything, that he owes a debt of gratitude which he can never hope to be able to repay, to our revered friend and confrere, Dr. G. V. Black. (Loud applause.)

The Toastmaster: Two or three weeks ago Dr. Williams had fully made up his mind to return to London, England, but after putting all the pressure we could to keep him here for this occasion, he changed his mind. When you think of Dr. Williams, and when you think of the guest of the evening, you also naturally think of the late Dr. Miller. Miller found out that lactic acid in the dentin would cause caries of the dentin. Williams found that caries of perfectly formed enamel did not occur unless the lactic acid was formed or contained and held beneath the gelatin plaque of Williams. Black found out that when lactic acid was contained and held in the gelatin plaque of Williams, the lactic acid went straight along the line of the prism rod until it reached the dentin, then spread laterally, and as a rule the prism did not fall down until caries occurred at the junction of the dentin, so that in the great problem of dental caries, I would not place one man first; I would place them in a circle. I would place Miller, I would place the guest of the evening, and I would place the next speaker in a circle, for each one worked out his part, and each part was essential to the other. Without further discussing this subject, as I intended, it gives me very great pleasure to call upon Dr. Williams. (Applause.)

The Significance of Unity and Loyalty in the Progress of Our Profession.

Dr. J. Leon Williams, London, England.

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen:

It is indeed a great privilege and an honor to be present here tonight, to be one of this distinguished company of my professional confreres met to do highly deserved honor to him who is the most distinguished of all. I think it is a sign of marked progress in fraternity an indication that our humanitarian impulses are getting stronger, that there is a growing desire in us not to be too tardy in our recognition of the value of lives devoted to high and unselfish purposes and dedicated to the good of their kind. A grasp of the hand and a kind word is worth immeasurably more to a living man than the costliest monument, or the richest mausoleum, to one who is dead. The dead need not our praises, but the living often grow weary and disheartened for lack of our sympathy. The soldier in the front ranks is made stronger and braver for battle by the encouraging and admiring plaudits of his comrades in the rear. And so we have met here tonight, not only to say "well done" to the old soldier who has fought a good fight, but to extend our sympathy and encouragement to him and to all in the work that lies ahead of us. That, from my point of view, is the deeper and more real significance of gatherings of this kind. And, furthermore, we honor our guest in the highest and finest manner possible, if we adopt into our own lives that unity of purpose and loyalty in action which has always aroused our admiration and commanded our respect for him until respect and admiration have culminated in this great gathering in which we grasp the hand of our leader, and in that hand-grasp, express all that fraternity and devotion to a cause mean by pledging ourselves to carry forward his work in our own lives and to encourage the spirit of his life work in our colleagues. (Applause.)

But, before I address myself directly to the toast assigned me, I wish to offer my personal tribute to Dr. Black. I have waited a quarter of a century for the opportunity to do this in some fitting manner. Some twenty-six or twenty-seven years ago, I was invited to read a paper before the First District Dental Society of New York. It was a daring, perhaps a foolhardy thing for a young and unknown man to oppose himself in a discussion of a scientific nature to the men who were the recognized leaders in that field at that time, and I think it would have gone hard with the young man if he had not been helped by one who was stronger than himself. On that occasion, Dr. Black came all the way from Chicago to support one who had no claims on him except those of earnestness and sincerity and a strong conviction of the right. But those were the only claims needed to enlist his help. He came, and with that warning forefinger extended towards the men of authority, he said, "Gentlemen of theories, beware when the serious and earnest young men get after you." And now, after all the years that have passed since then, I have taken the reverse journey which Dr. Black made, for the chance to tell him that that long ago night was one of the important turning points in my life. I thought if a man of his character and standing could make a journey of a thousand miles to say that of me, I would do what I could to justify his belief in me, and this is probably the first time he has ever known what an uplift he gave me on that occasion. And it is the crowning glory of his life that he has inspired hundreds of young men, as he inspired me, to have a strong purpose in life and to be loyal to their deepest convictions, and that knowledge must give him the greatest satisfaction. (Applause.) And that brings me back to my theme, and to the few words that I wish to address more particularly to this representative assembly of our profession.

Every human being, every living thing in the universe, is seeking satisfaction, harmony, unity. In the last analysis that is the sole business of life and all of the problems of our social organization grow out of difference of opinion as to what constitutes this satisfaction, as to what the nature of harmony and unity really is as expressed in action. Now, all progress consists, primarily, of the enlarging in human consciousness of man's ideas of relationship with his fellows, of the significance of harmonious action with his kind and loyalty to them in all concerted action. Those are the very most fundamental things of life, not only as affecting our mental, moral and spiritual progress, but also our material progress, and I believe that that material progress should be and must be the basis of the higher progress or evolution of races, states and communities. But the work of that material progress must be organized on the basis of fraternal interest and not of selfish, personal demand. If we look back to the beginning of races, what is the first thing that arrests our attention? Is it not the tribal god with his "*I* will," "*I* will not," "*I* demand this," "*I* refuse that?" That colossal "*I*" fills all the heavens and dominates all the thinking and all the conceptions of men. That raising of the self, the I, to infinity was primitive man's conception of a God. It takes a thousand or two thousand or ten thousand years to teach a tribe that the great "I" is the crude conception of a people whose minds are unformed. It is a long journey of evolution that separates that tribe from a people which recognize that unity of purpose, harmony of action and loyalty in service is the destiny of man, in the fulfillment of which destiny is to be found the transcendent satisfaction and happiness he has always been in quest of. Many have learned that great truth, but the collossal "I" still hovers over us shouting its strident, raucous demands. Its spirit penetrates many minds and hence comes all the cross-purposes and wasted efforts of men. Emerson says that all life is a search after Power. But the present search for power is largely personal and the strong man of today is strong chiefly in comparison with the unnecessary weakness of his fellows. The development of the greatest human power must lie in united and harmonious action. The wonderful triumph of Japan in her late war was a striking illustration of that fact. Carlyle said that ten men united in a friendship strong enough to melt all selfishness, could accomplish more than ten thousand who were not so united, and there is no exaggeration in that statement. (Applause.) Most men greatly underestimate the extent to which human power can be developed. The great difficulty is that we have not clarified our thinking, our reasoning, sufficiently to see the extent to which we neutralize one another's energy through misunderstanding.

What I am trying to bring out is the value of unity in purposeful action, unity vitalized and enforced by human will. That is the faculty for which I have the most unqualified and unbounded admiration. There is nothing that can stand before a man of will, even the gods make way for him, or rather, they come to his aid.

Zoroaster said, "To the persevering mortal, the blessed Immortals are swift." If one could imagine the universe as being conscious, I think it might send a thrill to the utmost stars when a man, with a great cause and a great purpose, says "by all the powers of the heights and the depths, I will." (Applause.)

The great lesson I read from the life-work of our honored guest is strong will expressed in deliberate, unhasting action—will and action founded on clear seeing and straight thinking. But I also think that we shall miss the most significant phase of the lesson of his life if we are not deeply moved and stimulated to greater personal exertion, greater exercise of our own dormant, unused faculties. A moment back I used the term "unhasting action" as characteristic of Dr. Black's work. If you will look over this *partial* list of his writings, a list covering 35 closely printed pages, and keep in mind that this enormous output represents his leisure-time work, so to say, that is, the interval in his regular professional duties, you will understand that such a great output could only have been accomplished by one who had reduced his life to harmony and unity and that is what I mean by "unhasting action." (Applause.) There has been no hurry in his work, but everywhere orderly movement, and on page 18 of this list you will find this title of a paper, "How to rest." (Laughter.) He has done this vast amount of work because he has learned the secret of harmonious action, and that means rest. What we want to do is to apply that secret to concerted action. Nearly everything that has been accomplished in our profession, up to date, has been the result of isolated, individual work. We think we have made great progress, but, gentlemen, in my opinion what we have done is as nothing to what could be done by perfect organization, greater unity and harmony of action and more perfect loyalty to each other. I think we are still much like squatters on the border of a great uncultivated sovereignty. We should enter in and take possession of our own. If I were to speak of all the grand things that I think could be accomplished by greater unity and loyalty, I should enter on a task of an hour, but I cannot avoid mentioning one thing that we should immediately set ourselves to do, and that is the placing of our national association in the position of dignity, superiority and authority which it should rightfully occupy. The relation of all state and local organization to the National Association should be similar to that which exists between our state government and the central government at

Washington. On some future occasion, I hope to elaborate the importance of this matter, but what I especially plead for now is greater exercise of will in unified action and greater steadfastness in the support of those who are working in special fields for the benefit of the profession. (Applause.)

We all know quickly enough when anything worthy of attention is presented. In fact, I think I discover here in our country today too strong a tendency to heap praise and plaudits on a man for some brilliant accomplishment of a day and too weak a tendency to honor the devotion of a lifework by taking up that work and carrying it forward in the same spirit. What, think you, an earnest, sincere man most desires of his fellows in their attitude toward him? Not the praise of a fleeting hour; not the plaudits stimulated by a convivial meeting; not medals or gifts except in so far as all of those things convey an expression of something that lies much deeper. What the earnest soul desires above all other things is that his fellows, his associates, his professional confreres shall continue the spirit of his work. That is the only true way in which he can be honored, and if not honored in that way, then occasions of this sort lose most of their significance. I think this is something that greatly needs to be said at the present moment, but you must interpret me aright, and not have the faintest suspicion that it is my desire to curb in any way the joyousness of our intent to express in the most spontaneous fashion, our great admiration for our honored guest. So interpreted my contribution contains no jarring note, but merely a touch of the base pedal, a suggestion of that deeper undertone which serves to support and give greater meaning to the melody. (Applause.)

Humanity is slowly moving toward a cosmic consciousness, a form of consciousness in which the universe is seen to be one grand whole, in which it is seen that unity of purpose leading to the fullest and most harmonious expression of each and every individual is the one great, dominant law. Before that consciousness the collossal "I" will pass away. With the coming of that cosmic consciousness we shall no longer be concerned and anxious as to what we, as individual units are to get out of each other, but we shall work in gladness, in harmony, in unity, in loyalty, because we shall know past all doubt that what a man gives, that it is which shall return to him.

Dr. Black, with great steadfastness of purpose and unswerving will has given freely of the best that was in him and tonight there returns to him what all the wealth of the world cannot purchase, the priceless treasure of true friendship, the devotion of professional brothers, the admiration of many men for a strong man, and best of all, there abides with him that which is the most difficult thing of all to win, the stamp of approval that his own deepest consciousness places on his loyalty to himself and the truth. (Loud applause.)

THE TOASTMASTER: The next toast "The South and Dr. Black," will be responded to by a speaker that hails from the South and he is a just representative, in that he truly stands for one of her best and oldest families in both the social and professional walks of life.

The South has ever been known as the home of a brave and hospitable people and she can rightfully boast of a perfect climate above a fertile soil, where even by night the cotton whitens beneath the stars and by day the wheat locks the sunshine in its own bearded sheaf. And renowned as the South is for her well known natural resources, she is most honored and respected for the loyal and gentle qualities of her women and her manhood that go to make up her citizenship. What is true of her social life is equally true of her professional colony, for in no other section of our country nor in no other clime has the Dental profession more men living up to their true ideals than in the South. Nor has any member of our Southern Dental profession more truly lived up to his opportunities and possibilities than has the gentleman who will now respond to the toast.

THE SOUTH AND DR. BLACK.

Dr. Henry W. Morgan, Nashville, Tenn.

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen:

When I accepted the invitation to speak here, I was not actuated by the feeling that I had a special message for you, or that I was in any way possessed of any particular qualification that fitted me for the task. I was greatly pleased at being offered this opportunity to express the esteem and reverence I have ever entertained for the guest of the evening, the influence of whose life and writings have been such an inspiration to me as practitioner and teacher. I feel greatly embarrassed in facing this large representation of the very best that our profession can assemble, and I must, therefore, make acknowledgments for the compliment you pay the South in giving her a place on your program, and the honor you have done me in asking me to speak for her. I do this advisedly, for should the embarrassment overcome me I want you to remember that although my words were awkward and rambling there was "courtesy on my lips and grace in my heart."

I feel confident that this unmerited compliment came to me because your Committee knew I would have little to say, and say that little quickly.

The toast assigned is: "The South—Dr. Black."

What can I say of the South? You know as much of her sunshine and shadows as I do; you are all familiar with her history, the high ideals of her statesmen, her vast battlefields, and her immortal heroes. These offer an unending source of entertainment, but are no longer dependent upon what we have to say of them for their places in history. A change has come. They have become a Nation's pride! A Southern man has no longer to apologize for being a Southerner. We rejoice that the differences of the sections of this great Union are growing fewer and fewer, until it is no longer possible in a group to discriminate. Not that we love the South less, every foot of Southern soil is dear to us; her history, her traditions, her noble women, her heroes are just as dear as ever, and you would not have us cease to love them.

The change that has come is in the understanding that the rest of the world has reached concerning us. It has learned that the South can and does love the Stars and Stripes. (Applause.) We rejoice that the change in us has brought a wider patriotism, respect, and veneration for American institutions, and the best attributes of the American race.

Why should it not be true that we would be growing together? We have a common origin, a common history, we have a common language, a common literature, and a common love of law and liberty. We have common principles to assert, and we have common interests to maintain.

It is not possible to think of Dr. Black without associating him with advance of education. I am going to let this thought direct me in what I say of the South this evening.

When I last spoke to a Chicago audience (soon after the meeting of the Association of Dental Faculties at Saratoga) it was to beg some of your college men, who I thought were going too fast in the matter of preliminary educational requirements for entrance to dental schools, to go a little slower and to give the Southern schools a chance. I painted a gloomy picture of our primary school conditions. Some of my hearers, familiar with the situation, afterwards told me I was right, and that there was just cause for the complaint against the over-zealous. Tonight what I would like to do is to present, in a few sentences, the other side of that picture. The change I then hoped for has come. Since 1902, the South has gradually awakened to the fact that her greatest menace is illiteracy, and has been organizing her forces to make war against it. In every state the public conscience seems thoroughly aroused to the awful responsibility for so much ignorance, and everywhere it is being realized that the most profitable business a state can engage in is the education of her citizens.

Tennessee seems to have assumed the leadership in the great educational movement, with Virginia a close second.

Ten years ago there were not half a dozen Public High Schools in my state. Today there are about seventy-five. Ten of them in cities, and sixty-five in the counties—half of the latter have been organized in the last twelve months.

At its last session, the legislature of Tennessee adopted a bill setting aside for educational purposes 25 per cent of her entire revenue, and wisely provided for three Normal schools for the white, and one for the colored race. Many of the Southern States have Educational Commissions studying the problems involved, and before long in such matters we will be on an equal footing with our more fortunate and prosperous sister States.

Let no word I have said be construed to the disparagement of our preparatory schools, colleges or universities, for they already rank with the best the Union can boast of. Last summer a graduate of the University of Mississippi, who was prepared in Tennessee, captured the highest prize in English at Oxford, the first American Rhodes scholar to obtain the honor.

From boyhood I was taught to regard our honored guest as one of the mighty forces that was elevating dentistry to the standing of a learned profession.

When I came to know him, I soon found that he took nothing on trust, but that he was living the life of a sincere scientist, and the opinions he gave out, he had formed, created and truly felt. To such purpose had he labored that, when he had done with a subject there was little for another beyond following him, and proving out the conclusions he had reached.

To one familiar with the literature of our profession, the accepted theories and practices of today, the conviction must come that we owe a great share of what has been achieved to the untiring labors and matchless example of Dr. Black, and that he had made contributions on almost every subject of any interest to a dentist. I would assert that his most valuable contribution was "The Anatomy of the Human Teeth." Before this, the anatomy as far as histology, tooth form, function, etc., were concerned, had been well covered, but this work gave a description of the surface with a nomenclature that was at once recognized as logical, definite and positive. There has probably been a greater sale of this than any other book ever published for dentists. It is not probable that any work will ever supplant it.

This was the basis, and furnished the nomenclature for all the vast contributions that have come to us from him since 1890.

Dr. Black has applied a knowledge of physics to the study of dental tissues and filling materials, which has produced results that must stand for all time, among the most original and far-reaching in benefits of all his labors, for out of it came a system of cavity preparation based on anatomy, histology and the pathology of caries which finally must be accepted by everyone who claims to be a scientific dentist. And strange as it may seem the greatest check to its universal adoption has come from its over-zealous advocates.

He is, as an experimenter, exact and faithful to every detail; as an investigator, accurate and honest; as a technical teacher, clear and systematic; as a writer and thinker, logical and convincing.

His is a creative mind, addressing itself to the common-sense of the receptive mind of his day. A student of nature, skilled in observation, of phenomena, scientific in his deductions, fruitful in suggesting methods of research which have extended the boundaries of the procession. With no theories to uphold, and no quarrel with those who do not see and understand as he sees. The thoroughness with which everything is done, the absolute obliviousness to time, pleasure, health, ambition, dominated by the sole aim of getting at the truth and nothing but the truth, these have builded a confidence and affectionate trust in the man that can never be destroyed.

In his writings, society discussions and conversations, he expresses himself always as if the subject under consideration was *the one* which had commanded his attention for some time.

If I may be permitted to sum it all up in a single phrase, I would say that we are living in the "Blackian Era of Dentistry." This is why the title of "Father of Scientific Dentistry" has been applied to him.

Dr. Black, we of the South love you also for the great versatility of your personal characteristics; because the multitude of professional duties have not absorbed all your energies, but have left time for music, hunting, fishing, yachting, conversation, everything good and worth while. All of which have made it easy to love you. Loving is your nature, lovable are your ways. God has given you:

"A spirit serene:—
A strength for the daily task.
Courage to face the road;
Good cheer to help the traveler's load.
And for hours to rest that come between,
And inward joy in all things heard and seen."

We honor you for your unfaltering devotion to the tasks you have set for yourself, the rich results of your labors, your humility, your commonsense, your self-denial, and your everlasting devotion and loyalty to your profession.

What you have accomplished no age—no people—can be indifferent to, and when the great account of humanity shall be closed, in the bright list of those who have adorned and served it, shall be found your name. (Applause.)

THE TOASTMASTER: I have a speech in my mind and will leave it there and take it home with me, however, before announcing the next toast, allow me to say that if we desire to learn the merits of a given generation of people or the influence of a single race upon the development of all civilization, we must seek the advice of the greatest historians of our time.

If we desire to learn the true value of Dr. Black's influence as a scientific investigator, we must seek, if we seek wisely, information from among our greatest scientific investigators, deans, teachers, editors, and students of modern and ancient literature.

But since our time will not permit of different men giving their views on each one of these five divisions, I will call upon one man who rightfully can be spoken of as one of the dental world's greatest scientific investigators, deans, teachers, editors, and students of modern and ancient literature, who will now respond to the toast:

DR. BLACK, THE SCIENTIFIC INVESTIGATOR.

Dr. Edward C. Kirk, of Philadelphia.

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen: I am asked to speak to the toast, "Dr. Black, the Scientific Investigator." It would seem that the bibliography of this great man's work, which has been placed before you all, would be a sufficient answer to that toast, in fact, when it was first suggested to me, that I should speak to this sentiment, I was on the point of going over our dental literature to compile such a bibliography, and then when I began to think of it I realized that any list of his works would not, from my point of view, represent my idea of Dr. Black, the scientific investigator, therefore I sought for a text or an idea that would explain him as a scientific investigator from my standpoint. I found it in the preface to his work on the "Formation of Poisons By Microorganisms," to which allusion has been made. He says there, among other things, "The men who have been most instrumental in the development of this subject have given us little else than the experimental facts. Most of us appreciate any subject more if we understand why these things are so. It is this *why* that I have sought to supply." It seems to me, in that paragraph Dr. Black has unwittingly expressed the spirit of the scientific investigator. What you have had put before you in this magnificent bibliography contains only the subject-matter of his work; but back of all that work has been the spirit of the man, the determination to find out the *why* of it. And this comes very forcibly to my mind, because just before I left Philadelphia I was invited to take dinner with a professional friend this evening, and I pleaded in excuse for my declination this previous engagement. My friend said, "I am glad you are going; I wish more men from Philadelphia were going." And that led to some talk between us of Dr. Black. He said, "I have read a good deal of Dr. Black's work, but there are so many things he has written about in operative dentistry that we knew before." I was startled at the statement, and it is just on this question of what we knew about it before, that I want to speak.

I had the pleasure some years ago of a visit at my house from

W. D. Miller, and after dinner, in my library I picked up this little book (exhibiting book) nearly four centuries old, written in 1530, and I read to him a paragraph. The book is upon what we may call dental pathology and operative dentistry. It is the first separately published work on this subject known to book collectors. In this book the author speaks of decay of the teeth, which he denominates corrosion, and I read this to Miller, the man who had solved the nature of the carious process, and it says: "Corrosion is a disease and defect of the teeth when they become carious, which most often happens in the molars, especially if one does not clean them of the adhering food, which becomes decomposed and produces thereby a bad, sharp or acid moisture, and corrodes the teeth increasingly until it spoils the teeth entirely, so that they fall away in pieces not without pain." I said to Miller, "You are the great scientific exponent of the chemico-parasitic origin of dental caries. What have you to say about that?" He smiled a very genial and pleasant smile and said, "Well, Kirk, they were good guessers in those days, weren't they?" (Applause.) This was an empirical observation, or a deduction from certain well known phenomena. It was true as far as it went, but we did not know the *why,* and let us see what happened because we did not know the *why.* It was known that clean teeth did not decay. It was also known that teeth decayed upon their surfaces of contact. Various methods were devised and advised for correcting that difficulty, and curiously enough, notwithstanding the differences of belief held respecting the theory of decay causation, separation of the teeth by means of the file was the method advocated by the advocates of both theories for its cure. There was held at the same time, or a little later, the inflammatory theory of decay. It was believed to be something arising from within the teeth. I have here the title of another book dealing extensively with the inflammatory theory of decay, and written by one Charles Bew, who was a dentist to the court of Charles IV, a lineal descendant of the gentleman who made trouble with some of our Boston friends in the early days because he was charged with being a grafter in connection with the tea business. The title of the book is this: "Opinions On the Causes and Effects of Diseases in the Teeth and Gums, With Practical Observations On the Devastating Consequences of Their Origin as Ascribable to Lateral Pressure." This author believed that lateral pressure of the proximating surfaces of the teeth caused decay, and that the disease was inflammatory in character. So both the men who held to the inflammatory theory of decay as well as those who held to the decomposition or chemical theory of decay attempted to overcome it by making separations between the teeth, and the file was used extensively, as you know, until it reached its culmination in the Arthurian period in 1871, or as late as the early seventies, about which time contouring and restoration of contours finally became supreme. When we consider the extent of tooth mutilation and the consequent damage to human health and comfort which resulted from the practical application of these wrong theories as to the cause of dental caries who can doubt the value of the scientific investigations which have brought us nearer to the "why" and helped to reform our restorative operations on right lines? This same gentleman, who asked me what Dr. Black had done that was new, said that all of this question of "Extension for Prevention" was previously known and practiced; that Varney and Webb understood that it was necessary to have self-cleansing margins which, in a limited sense, is true. They practiced upon that principle and fully understood it in a practical way, but it required all the four hundred years since this little book was written, and it required the work of Miller and those who preceded him; it required the work of Williams and of Black before it could be said, and said truthfully by our honored guest, that *"the margins of a cavity must be laid down upon areas of tooth structure that are relatively immune to the attack of carious-producing organisms in order to prevent recurrence of decay."* It required the combined observation and the wisdom of every thinker and every teacher and every investigator that had preceded this man Black before that formula could be intelligently written. That is the kind of thing that Black has accomplished, not only for operative dentistry, but in every department of scientific investigation which he has taken up. He has reduced the science of it to that kind of formula, and the formula he has not only enunciated, but he has prescribed its application to the art of dental practice; and just as the previous speaker has said, if any error has arisen because of that formula, it has been in the interpretation of it by others. I take it, from my point of view, that the great thing Black has done is not so much in what I have designated as the recorded subject-matter of his work, or even in the work itself, but to me the crowning glory of this man's work has been the scientific ideal, the injection into the minds of the dental profession of a recognition of the importance of, and a reverence for the scientific method in the doing of our work, that to my mind, is the thing of greatest importance. That is the uplift he has given to us. It is of little moment if we take that bare formula and ignorantly apply it, but it is of the utmost importance if we apply it intelligently.

It is not necessary for me to take up in any detail or to take up your time any further with a discussion of the work of Dr. Black, for after all the greatest of his achievements is that he has left his impress upon dentistry by the intellectual uplift he has given us in enabling us to understand and appreciate the scientific method as applied to our work. (Applause.)

We are not here to honor Dr. Black, his life work is his honor, but we are here to express publicly our appreciation of what Dr. Black has done for us, and to Dr. Black personally I want to express my thanks for what he has done for me, and to say, on behalf of the many not privileged to speak for themselves, God bless him for what he has done for all of us, not only for the dental profession, but for the uplift, for the help, for the benefit that he has conferred upon humanity at large. (Loud applause.)

Here the toastmaster read many letters and telegrams, cablegrams and testimonials from members of the dental profession, and from dental societies and clubs in many sections of the United States and several foreign countries.

The Toastmaster: At this time I will not call upon the guest of the evening, but will ask Dr. J. D. Patterson, of Kansas City, Missouri, to say a few words.

Dr. Patterson said:

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen: I am appearing tonight through the courtesy of your toastmaster, Dr. Logan, for Dr. D. O. LeCron, of St. Louis, who is prevented from being here on account of illness but who has sent to Dr. Black a testimonial of his love and esteem in the form of a beautiful, pure gold emblem of a fraternity to which Dr. Black belongs. Dr. LeCron, a quiet, modest gentleman of the highest ethical standards, and possessing the highest skill, has cast this beautiful emblem which I have been asked to present to Dr. Black, which I now take great pleasure in doing.

Dr. LeCron in doing this is doing what the dental profession is doing quite frequently all over the country, giving their testimonial and esteem to men in the dental profession who have made life worth living. It is the testimony of their love for those men before they have passed away—certainly a very admirable thing to do, and I cannot help but add that the whole West is imbued with the idea of giving credit to men and letting them know it, before they pass away, and if I may be allowed to speak for Kansas City, for Kansas and the West, which I represent at this gathering here tonight, I do not hesitate to say that we take this occasion to manifest our love and esteem and gratitude to those men who have taught us to make life better and worth living. It is a good thing that they should be remembered in this way, and it recalls the old adage that if you have a friend and love him, tell him that you love him before the evening sun changes his brow with a sunset glow. Why should all good words be said of a man after he is dead? It is much better to say good things about him when he is alive. I have nothing more to say except that we give this welcome to Dr. Black, and we say, all hail to Dr. Black! (Applause.)

Dr. H. Edmund Friesell, of Pittsburg, was introduced, and said:

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen: There are many things for which Chicago and Illinois ought to be thankful. She has a wealth in many ways that is not equaled in other sections of this country. Especially are Chicago and Illinois wealthy in eminent men, both young and old, in dentistry. We of Western Pennsylvania do not envy Chicago and Illinois in this wealth of men in dentistry. We glory in it. We wish you God speed. You have many things we would like to have and that we are striving for; but there is one thing in which the dentists of Chicago and the dentists of Illinois cannot exceed the dentists of Western Pennsylvania who know Dr. Black, and that is in our love for him. (Applause.)

As a small token of our appreciation and love for you, Dr. Black, we present you this candelabra. (Applause.)

The Toastmaster: We have with us this evening a representative of the State Board of Illinois, and I am going to ask Dr. Pruyn, as the President of that Board, to say a few words.

Dr. C. P. Pruyn:

Mr. Toastmaster, our Honored Guest, Ladies and Gentlemen: It is indeed a pleasure to stand before such an audience as this to represent the dentists of the State of Illinois. I have the honor, Dr. Black, of presenting to you in the name of the Illinois State Board of Dental Examiners and of the dentists of the State of Illinois, this array of silver for your use and that of your family until time shall be no more. (Applause.)

Dr. Truman W. Brophy was called upon, and said:

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen: In the history of a people men are born whose wisdom and logic command attention, and they are chosen to guide the ship of state, and to shape the destiny of the nation. The sons of Illinois have always been active in every field of human endeavor. In statesmanship the name of the immortal Lincoln stands supreme. The lives of Grant and Logan have added lustre to the pages of the history of our state, and their fame is the nation's glory. The legal profession gave us Chief Justice Fuller. In theology the great logicians, David Swing and H. W Thomas, were towers of strength. In medicine, the successful organizer and profound scholar, N. S. Davis, ranked among the foremost physicians of his time. In surgery the incomparable Senn was the light of the world, a benefactor to mankind.

On August 3, 1836, in Scott County, Illinois, a boy was born, who was destined to become a leader of men, to delve deep into unsolved problems,- and bring blessings, not only to the people of his time, but all generations yet to be. Unmindful of his own well-being, and filled with a desire to alleviate human suffering, he worked by day and night. The results of his efforts the world knows and appreciates. What Lincoln was in statesmanship; what Grant was at the head of the Army; what Melville Fuller was as the Chief Justice of the United States; what N. S. Davis was in medicine; what the master surgeon Senn was in surgery, in the science and art of dentistry it is the distinguished man whom we honor tonight, Dr. G. V. Black. (Applause.)

In recognition of his services as a teacher, writer, investigator, scientist, and as a lover of humanity, we place our wreath of laurels at his feet. Dr. Black, a very pleasant duty has been assigned to me to present to you, on behalf of your friends, including college teachers, the G. V. Black Club of St. Paul, The Des Moines Club, The Dubuque Club, and The Illinois State Board of Dental Examiners, another appreciation of your distinguished services to our profession, to the cause of education, and in the field of original research and in the interest of humanity, this tangible token (in silverware) of our esteem. (Applause.)

Dr. Don M. Gallie was introduced by the Toastmaster as follows:

The next speaker, whom I shall call upon to address you is not down upon the regular program, and is a foreigner by birth. However, he is a fellow-member of the Chicago-Odontographic Society, whom we always delight to hear and one who is always heard when he speaks.

A man of delightful and pleasing personality, and strictly a good law-abiding citizen, in spite of his two terms as President of the world famed Dental Knockers Club of our fair city.

He is at heart, a man who stands for the square deal and leads the strenuous life and because of his candor and unquestionable honesty he might be properly styled the Theodore Roosevelt of the Dental Profession. This being a fact, I now take pleasure in introducing to you—Dr. Theodore Roosevelt Donald McKay Gallie, of U. S. A.

Dr. Gallie:

Mr. Toastmaster, Honored Guest, Ladies and Gentlemen: The life-work and teaching of Dr. G. V. Black have been our guide. They have been beacon-lights that gave inspiration and ambition to the young dental wayfarer and led him into the paths or channels of ambition and stimulated in him a desire to do work that would take its place among that of the great men of our profession.

It is my pleasant duty to present Dr. Black with another token. This great demonstration had its origin and took form in the shape of a resolution presented before the Chicago-Odontographic Society, and this book which I hold in my hand contains that resolution. This was followed by the appointment of a committee of honorary members for the purpose of taking part in this delightful occasion, and following that are the names and the officers of the Chicago-Odontographic Society. But more important still, and you will find it in the following pages, are the names of the privates whom you have taught to fight the battle, and they are here tonight, and, Dr. Black, it affords me the greatest pleasure in behalf of those present to present to you this book. In referring to it you will see the inception of this delightful celebration, the names of the men who promoted it, and the names of the privates who backed it. (Applause.)

Dr. R. Ottolengui, of New York, was introduced, and said:

Mr. Toastmaster, Dr. Black, Ladies and Gentlemen: I am here tonight as a messenger with a message from the metropolis of these United States, the metropolis of our great profession of dentistry. If you will permit me, I will give a brief sketch in black and white of what a dentist is. In the beginning we had dentists who looked at the cavity in a tooth, and scooped out the decay, filled the cavity, and found that it saved that tooth for some time. The dentist filled it with whatever he could find. He tried one thing, then another, and he hoped that some day he might find some thing and some way to fill teeth, so that they would stay filled for the longest time. And dentists of this kind were dentists who were white, because they were doing the best that was in them, and that is ethical, and what is ethical is pure, and what is pure is white. But there came upon the scene another sort of dentist in the embodiment of another kind of man, and when he found they did as he would do, or as his fellows told him to do, there was recurrence of decay. He determined to go to the bottom of this thing and find out the *why* in order that he migh find out the *how,* and the result was that he did find out the best way to use the materials which he had, and the best way to prepare the holes in which to put them that they might not get any larger. True, he may have made them a little larger than he found them, but we found by our old ways they grew larger than we left them, and that kind of dentist was Black. (Applause.) It is true, he made a record of all his experiments and all of this work, and that record was made in black and white, in black ink upon white paper, and let me tell you there are many kinds of ink. There is white ink, as well as black ink, but the white ink, like the work of these white dentists, fades away, and is gone forever, but black ink is the ink which is indelible, and that which is indelible is everlasting, and what is everlasting is immortal. And so I say, the work of Black will be indelible, will be everlasting, and will be immortal. (Applause.) But, gentlemen, I have used the word "immortal." It is a tremendous word, and I have used it only in conjunction with the work of Black.

Now, what of Black himself? He, too, will be immortal. But what then of his immortality? The church gives us or tells us of this paradox, that a man born on a given day will live forever, and forever, and the church calls that immortality. But the church is wrong. That which had a beginning must have an end, for what begins must end, and that which has no ending has no beginning, and so immortality works in both directions. There are two things to which I desire to call your attention, in order to give you my ideas. We have a line which begins here and ends there, and that line may represent the body of a man, and one end will be his birth, and the other end will be his death, and that is all birth is, and all that death is. But there is another kind of line that goes around in a circle, and it has no beginning, and it has no ending, and that is immortality. Now, the body of this man Black may die, but Black, the ego, is an immortal thing, of which we know and which originated all this work which I have told you will be immortal, and will last forever, because it has always lasted. And so Dr. Black, when you put the robes of immortality around you and lie down to pleasant dreams, those dreams will be a continuation of your work, and let me tell you, sir, that the one church which has solved this problem is in the Orient, which tells us that besides our mortal body, which has a beginning and an end, there is another body which is called the astral body, and that body, as it drifts away from this mortal casket in which it has been placed, floats in ether and looks back upon the work it has done, and if that work is good work, and is unfinished, the astral body does not float off into space and out into the universe, but in obedience to rule and law, it stays and waits and watches for an opportunity to come down again to this earth, and I prophesy that the Messiah of dentistry will rise again to solve and finish all our problems, and I think that Messiah will be the same ego and the same soul that sits in the body before us, and whom we call Black. (Applause.)

Now, gentlemen, I have said that I had a message to bring to you. I have two messages to bring to you, one from those men in the East, and another which, with your permission, I will deliver in person to Dr. Black.

There never was but one organized opposition to the doctrine of "extension for prevention." It was organized and conducted at a meeting of the Second District Dental Society in New York City. Eastern men were arrayed aginst Dr. Black and his disciples in the West, so that "extension for prevention" came to be looked upon as a Western doctrine. In my executive connection with that society I was the one who organized that meeting, in which views were expressed in opposition to those advanced by Dr. Black. But, gentlemen, if there is one privilege that a man has, it is to come forward and publicly admit his error, and it has been my great pleasure to come here tonight with the hope that you would give me an opportunity to say that I am sorry, very sorry, that I started that opposition, because I was wrong. (Applause.) And so, when I received an invitation to come here, the idea flashed across my mind, here is your opportunity to admit your fault, and in a measure to make reparation. And so I went to the same Second District Dental Society, whose power I had used to organize that meeting, and I said, Gentlemen, I want some money, and I told them why I wanted it, and I got it. (Applause.) Then I wrote to the men in the East, whom I knew were great admirers of Dr. Black, and I told them I wanted some money, and I got it, and they have sent this engrossed message which I will read to you:

"The Second District Dental Society, New York, having learned of a banquet to be given to Dr. Greene Vardiman Black in the City of Chicago on the evening of January 29, 1910, we, the undersigned, take advantage of the occasion to present a slight token of our appreciation of his life-time labor in the field of scientific dentistry, as dental investigator, bacteriologist and pathologist, and teacher of dentistry. We admire him especially for his three great achievements; First, In solving the problem of the relation of caries to hard and soft teeth; second, in solving the problem of the scientific filling of teeth with amalgam or with gold; third, especially for the doctrine of "extension for prevention," by which he created a system of scientific cavity preparation. For this and other practical benefits resulting from his experiments and studies, the Second District Dental Society is everlastingly indebted to him."

And then follow the signatures of the one hundred of Dr. Black's admirers in the East. (Applause.)

But in addition to this, we wanted to bring to Dr. Black, our honored guest, some fitting token of our love, of our esteem, and of our appreciation, and to me the lot fell of the selection of this gift, and I am glad that our attention was called earlier in the evening to the fact that Mrs. Black is in the audience, because a wise man has said that his pity goes out to the wife of the man of science, because his career will deprive her of much of his society. And so when I was thinking of what would be appropriate to bring to Dr. Black I consulted my own wife on this matter. I consulted her for two reasons: First, because I knew she would give me good advice, and second, because I knew I would be obliged to do as she told me anyhow. (Laughter.) And she said to me, "I will tell you exactly what to buy for Dr. Black. Buy something that he would like to look at, but something that Mrs. Black can make some use of." (Laughter.)

So, Dr. Black, as your services to the dental profession have been golden, we have thought it eminently proper to present you with a golden service. (Loud applause.)

Toastmaster Logan, in introducing Dr. Black, said:

It was my privilege to become personally acquainted with Dr. Black some ten years ago. Therefore, I wish to lay my individual laurel wreath of honor about his life's work, less in the years it represents in companionship when compared to the speakers who have addressed you but equal in its appreciation for his noble character, for his uplifting influence, for the manly man, for the good he has rendered mankind, and for the incentive that his life's work has been to us younger men of the profession. (Applause.)

Dr. Black was greeted with round after round of applause, and, when quiet was restored, spoke as follows:

Mr. Toastmaster, Ladies and Gentlemen: I have been fearful that I would not be able to talk tonight because of a sore throat; but as the evening has worn on, and I have listened to what has been said, it seems to me that there is but one thing that I should say, and that is to thank you. Mr. Toastmaster, I want to thank you personally for what you have done on this occasion; particularly that the impulse which has brought it about seems to have sprung from you individually. I wish also to thank the speakers, one and all, who have spoken this evening for the good things they have said of me and of my work. It would take more time than my very lame vocal cords will allow me to go over what each one has said, or even attempt to thank them for what they have said. I wish, however, to thank you both individually and collectively for being here tonight, and in showing evidences of appreciation of me and of my work. What I may have done in my life work most of you know, but I should hardly speak of that now. It is curious, however, to think back over it all. I have not been much given to thinking backward or looking backward (applause), but I have run back just a little since you started this movement. The peculiar thing that I wanted to speak of tonight is the extreme difficulty of explaining a thing so that it is understood, or on the other hand, the difficulty of keeping important facts before the mind if they should be fully and satisfactorily explained as well. There was a time when articles were being written on the welding property of gold. These were theoretical or speculative articles. When the welding property of gold was explained, all of this stopped, and few men perhaps, really know the explanation today—not lost, but not used as it should be. That is one of the curious features of a satisfactory explanation of the subject. The other curious feature is as to how long it takes to diffuse facts somewhat difficult of conception—facts somewhat difficult to explain in words—through a profession. Now, I am not going to make a speech. I want to say to you, one and all, who have come here tonight, and those who have not come, that I thank you from the bottom of my heart for what you have said and done, not only the speakers of the evening, but those who have not spoken. I have heard from most of you. I know you. As to these beautiful things that have been presented here tonight—what should I say? Beautiful and valuable as they are, the most beautiful thing, and that which I shall value most is that which has prompted the giving. Again I thank you. There is one thing that I miss, and that is my older associates who are gone; they are not here tonight, in the body at least. I would wish they were. Now, with this, I will say good-bye—no, good-night, not good-bye, because I expect to see many of you again. And another thing I had intended to say, and I will try to say it is, that I am not ready to say good-bye. (Applause.) There are many things in my mind today that ought to be done, that possibly I may be able to do, and for that reason I am not ready to say good-bye. And still another reason: I love the dental profession; I love the work I have been doing, and I am not ready to quit. Good-night. (Loud applause.)

The Toastmaster: It is my pleasure now to introduce to you the great influence in this man's life, and the great influence that is coming into the activities of the dental profession for many years to come—Mrs. G. V. Black and Dr. Arthur D. Black. (Loud applause.)

The singing of Auld Lang Syne brought the proceedings to a close.

LEADING EVENTS IN THE LIFE OF DR. BLACK.

D. D. S., Missouri Dental College, 1877.
M. D., Chicago Medical College, 1884.
Sc. D., Illinois College, 1892.
LL. D., Northwestern University, 1898.

Born near Winchester, Scott County, Illinois, August 3, 1836.
Family moved to farm seven miles southeast of Virginia, in Cass County, Illinois, in 1845.
Attended country school about three months each winter.
Studied medicine with Dr. Thomas G. Black, a brother, at Clayton, Ill., 1853-1856.
Studied dentistry with Dr. J. C. Speer, Mt. Sterling, Ill., 1857.
Practiced dentistry at Winchester, Ill., 1858-1862.
Enlisted in 129th Illinois Volunteers, 1862.
In hospital at Louisville, Ky., six months, and discharged for disability, 1863.
Practiced dentistry in Jacksonville, Ill., 1864-1897.
Joined Missouri State Dental Society, 1866.
Joined Illinois State Dental Society, 1868.
First important dental paper on "Gold Foil" read before Illinois State Dental Society, 1869.
President Illinois State Dental Society, 1870-71.
Invented one of the first cord driven, foot power, dental engines, 1870.
Lectured on pathology, histology and operative dentistry, Missouri Dental College, 1870-1880.
First president of the Illinois State Board of Dental Examiners, 1881-1887.
Wrote book, "The Formation of Poisons by Micro-organisms," 1884.
Professor of Dental Pathology, Chicago College of Dental Surgery, 1883-1889.
Introduced teaching of Dental Technics, Chicago College of Dental Surgery, 1887.
Wrote for the American System of Dentistry, chapters on "General Pathology," "Dental Caries," "Pathology of the Dental Pulp" and "Diseases of the Peridental Membrane," 1886.
Wrote book "Periosteum and Peridental Membrane," 1887.
Voted life membership in Illinois State Dental Society, 1889.
Professor Dental Pathology and Bacteriology, Dental Department, University of Iowa, 1890-91.
Wrote book, "Descriptive Anatomy of the Human Teeth," 1891.
Wrote series of articles entitled, "The Management of Enamel Margins," Dental Cosmos, 1891.
Professor Dental Pathology and Bacteriology, Northwestern University Dental School, 1891-1897.
Chairman Section on Etiology, Pathology and Bacteriology, World's Columbian Dental Congress, 1893.
Report on Dental Nomenclature, World's Columbian Dental Congress, 1893.
Wrote series of articles entitled "An Investigation of the Physical Characters of the Human Teeth in Relation to Their Diseases and to Practical Dental Operations, Together with the Physical Characters of Filling Materials," Dental Cosmos, 1895-96.
Dean and Professor of Operative Dentistry, Dental Pathology and Bacteriology, Northwestern University Dental School, 1897, and at present.
President, National School of Dental Technics, 1897.
President, National Dental Association, 1900.
Awarded First Fellowship Medal, by the Dental Society of the State of New York, 1905.
Special Guest at Annual Meeting of American Dental Society of Europe, 1906.
Wrote Work on "Operative Dentistry," in two volumes, 1908.

A PARTIAL LIST OF THE WRITINGS OF DR. G. V. BLACK.

1866-1909

Presented on the Occasion of the Testimonial Banquet by the Chicago-Odontographic Society, January 29, 1910.

Compiled by Dr. Arthur D. Black.

NOTE.—This list has been hurriedly compiled, and there are doubtless a considerable number of omissions. The files of the Dental Cosmos, DENTAL REVIEW and the Transactions of the Illinois State Dental Society, which contain most of Dr. Black's writings, have been thoroughly searched, and many other journals have been reviewed hastily. The list also includes the titles of many papers and essays on subjects aside from dentistry. A considerable number of these have never been published, but the original manuscripts of all have been preserved.

Books.

The Formation of Poisons by Microorganisms. 178 pp. P. Blakiston, Son & Co., Philadelphia, 1884.

Chapters in the American System of Dentistry (Litch) on the following subjects: General Pathology, Vol. 1, p. 661, 68 pp., 32 Illus. Dental Caries, Vol. 1, p. 729, 100 pp., 38 Illus. Pathology of the Dental Pulp, Vol. 1, p. 829, 60 pp., 41 Illus. Diseases of the Peridental Membrane, Vol. 1, p. 918, 85 pp., 48 Illus. Abrasion and Erosion of the Teeth, Vol. 1, p. 993, 18 pp., 6 Illus. Lea Brothers & Co., Philadelphia, 1886.

A Study of the Histological Characters of the Periosteum and Peridental Membrane. 138 pp., 67 original illustrations. W. T. Keener Co., Chicago, 1887.

Notes and Additions to a Compendium of Dentistry by Jul Parreidt. (Translation by Louis Ottofy.) 229 pp. W. T. Keener Co., Chicago, 1889.

Descriptive Anatomy of the Human Teeth. 161 pp., 137 original illustrations. Wilmington Dental Mfg. Co., Philadelphia, 1890.

A Work on Operative Dentistry in Two Volumes. Vol. 1. The Pathology of the Hard Tissues of the Teeth, 319 pp., 187 Illus. Vol. 2. The Technical Procedures in Filling Teeth, 403 pp., 447 Illus. Medico-Dental Publishing Co., Chicago, 1908.

Essays, Articles in Dental Journals, Papers and Published Discussions Before Societies, Miscellaneous Writings.

1866.

Oxygen. 22 p., 1866. Unpublished.

Flame. 17 p., 1866. Unpublished.

Address delivered before anniversary of the Young Men's Literary Society of Jacksonville, Ill. 7 p., Jacksonville Journal, 1866.

A True Story: An Encounter with a Panther. 17 p., 1866. Unpublished.

1867.

Report of a Case of Replanted Teeth. Amer. Den. Assn., Dental Cosmos, Vol. 9, 1867, p. 93.

On Treatment of Nearly Exposed Pulps. Amer. Den. Assn., Dental Cosmos, Vol. 9, 1867, p. 132.

Epithelioma. 15 p., 1867. Unpublished.

Zoological Chemistry. 148 p. Series of lectures before a class in chemistry, Jacksonville, Ill., 1867. Unpublished.

Spray Producers. (For administering anesthetics.) 16 p., 1867. Unpublished.

1868.

Treatment of Sixth Year Molars. Discussion. Ill. S. Den. Soc. Transactions, 1868, p. 36.

Plugging Pulp Cavities and Canals. Discussion. Ill. S. Den. Soc. Transactions, 1868, p. 37.

1869.

Gold Foil. Ill. S. Den. Soc. Missouri Den. Journal, Vol 1, 1869, p. 283. Dental Cosmos, Vol. 12, 1870, p. 92.

Filling Teeth. Discussion. Ill. S. Den. Soc. Missouri Den. Journal, Vol. 1, 1869, p. 305.

Alveolar Abscess: Its History, Pathology and Treatment. Discussion. Ill. S. Den. Soc. Missouri Den. Journal, Vol. 1, p. 329.

A New Method of Grafting Crowns on the Roots of Teeth. Missouri Den. Journal, Vol. 1, 1869, p. 233.

A Report of Cases of Absorption of Dentine by the Pulps of Teeth, Due to Irritation. Missouri Den. Journal, Vol. 1, 1869, p. 411.
Ammoniated Gold Foil. Missouri Den. Journal, Vol 1, 1869, p. 414.
Cicatrices of the Gums. Missouri Den. Journal, Vol. 1, 1869, p. 518.

1870.

Exposed Pulps. Ill. S. Den. Soc. Transactions, 1870, p. 6. Disc., p. 18. Dental Cosmos, Vol. 12, 1870, p. 363. Disc., p. 364.
Arsenious Acid: When and How to Use It. Discussion. Ill. S. Den. Soc. Transactions, 1870, p. 36.
Complicate Fillings. Discussion. Ill. S. Den. Soc. Transactions, 1870, p. 46. Dental Cosmos, Vol. 12, 1870, pp. 367, 368.
Separating Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1870, pp. 54, 60. Dental Cosmos, Vol. 12, 1870, pp. 369, 370.
Dental Legislation and Plate Work. Ill. S. Den. Soc. Transactions, 1870, p. 82. Disc., pp. 87, 89, 102.
Separating Teeth Preparatory to Filling. Missouri Den. Journal, Vol. 2, 1870, p. 255.

1871.

Remarks of Retiring President. Ill. S. Den. Soc. Transactions, 1871, p. 105.
Oral Lathe, Report of Committee on Invention of Same. Ill. S. Den. Soc. Transactions, 1871, p. 106. Dental Cosmos, Vol. 13, 1871, p. 415.
Alveolar Abscess. Discussion. Ill. S. Den. Soc. Transactions, 1871, pp. 124, 126.

1872.

Sound Practice, Sound Philosophy (Re Use of Mallet). Discussion. Ill. S. Den. Soc. Transactions, 1872, p. 59. Dental Cosmos, Vol. 14, 1872, p. 427.
Sensation and Nourishment in Dentine. Discussion. Ill. S. Den. Soc. Transactions, 1872, p. 97. Dental Cosmos, Vol. 14, 1872, p. 482.

1873.

Causes of Various Colors in Decayed Teeth. 27 p. Miss. Valley Den. Soc., 1873. Unpublished.
Abrasion and Erosion. Discussion. Ill. S. Den. Soc. Transactions, 1873, p. 63. Dental Cosmos, Vol. 15, 1873, p. 541.
The Removal of Pulps; Preparation and Filling of Pulp Canals. Discussion. Ill. S. Den. Soc. Transactions, 1873, p. 69. Dental Cosmos, Vol. 15, 1873, p. 543.
May the Calcific Elements of the Deciduous Teeth Be Appropriated in the Formation of the Permanent Ones? Discussion. Ill. S. Den. Soc. Transactions, 1873, p. 86. Dental Cosmos, Vol. 15, 1873, p. 549.
Contour Fillings. Discussion. Ill. S. Den. Soc. Transactions, 1873, p. 102. Dental Cosmos, Vol. 15, 1873, p. 554.
Diseased Conditions: Their Effects Upon the Teeth. Ill. S. Den. Soc. Transactions, 1873, p. 129. Disc., p. 143.
Mechanical Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1873, p. 158.
Prevention and Treatment of Decay on Proximal Surfaces of the Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1873, p. 191.

1874.

Causes of the Various Colors Observed in Decay. Effects of Acids in Motion Upon the Teeth. Reference to Same in Reports of Committee on Dental Chemistry. Amer. Den. Assn. Dental Cosmos, Vol. 16, 1874, p. 600.
The Treatment of Deciduous Teeth. Discussion. Miss. Valley and Mo. Den. Soc. Dental Cosmos, Vol. 16, 1874, p. 258.
What Are the Best Materials for Filling Roots of Teeth? Discussion. Miss. Valley and Mo. Den. Soc. Dental Cosmos, Vol. 16, 1874, p. 301.
Causes That Underlie the Decay and Loss of the Teeth. Discussion. Miss. Valley and Mo. Den. Soc. Dental Cosmos, Vol. 16, 1874, p. 305.
Dental Students. Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 32. Dental Cosmos, Vol. 16, 1874, p. 466.
Why So Many Failures in Dental Operations? Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 49. Dental Cosmos, Vol. 16, 1874, pp. 469, 470.
Record of Tests of Saliva. Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 70. Dental Cosmos, Vol. 16, 1874, p. 471.
Etiology of Dental Caries. Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 70. Dental Cosmos, Vol. 16, 1874, p. 474.
The Changes in the Shapes of Teeth That Are Necessary or Proper for the Treatment of Decay. Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 87, 89. Dental Cosmos, Vol. 16, 1874, pp. 549, 551.
Popular Education with Regard to the Subject of Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 106. Dental Cosmos, Vol. 16, 1874, p. 608.
Celluloid. Discussion. Ill. S. Den. Soc. Transactions, 1874, p. 108. Dental Cosmos, Vol. 16, 1874, p. 609.

1875.

Gold. N. Y. Odontological Soc. Dental Cosmos, Vol. 17, 1875, p. 138. Correction, p. 210. Disc., p. 301.
Probabilities in Operative Procedures. Ill. S. Den. Soc. Transactions, 1875, p. 92.
Typhoid Fever. 46 p. Morgan County (Ill.) Medical Society, 1875. Unpublished.
The Earth Worm. 73 p. Jacksonville (Ill.) Microscopical Society, 1875. Unpublished.
Man—Rrepresentative of the Universe. 36 p. Literary Union, Jacksonville, Ill., 1875. Unpublished.

1876.

Pathological Conditions of the Teeth and Their Effect Upon the General System. Discussion. Ill. S. Den. Soc. Transactions, 1876, pp. 34, 38.
Eclecticism in Dental Practice. Discussion. Ill. S. Den. Soc. Transactions, 1876, p. 46.
In What Does the Improvement in Dentistry During the Last Fifteen Years Consist? Ill. S. Den. Soc. Transactions, 1876, p. 58.
Oral Electricity. Discussion. Ill. S. Den. Soc. Transactions, 1876, p. 72.
Celluloid. Discussion. Ill. S. Den. Soc. Transactions, 1876, p. 97.
The Treatment of Teeth Containing Dead Pulps. Discussion. Ill. S. Den. Soc. Transactions, 1876, p. 106.
Dental Histology. 54 p. 1876. Unpublished.
A Study of the Cicada. (Seven Year Locusts.) 8 Illus. Jacksonville (Ill.) Microscopical Society, 1876. Unpublished.
The Mechanic Arts of 1776 and 1876. 10 p. Literary Union, Jacksonville, Ill., 1876. Unpublished.

1877.

Circulation of the Blood in the Walls of the Air Vesicles of the Lungs. Missouri Den. Journal, Vol. 9, 1877, p. 535.
The Wants of the Profession. Discussion. Ill. S. Den. Soc. Transactions, 1877, p. 29.
Relative Merits of Certain Materials for Filling Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1877, p. 51.
Tooth Pulp and Its Treatment. Discussion. Ill. S. Den. Soc. Transactions, 1877, pp. 93, 95.
Operative Dentistry: Special Points to Be Observed to Insure Success. Discussion. Ill. S. Den. Soc. Transactions, 1877, pp. 107, 112.
Modes of Preparing Specimens of Odontoblasts. 14 p. 1877. Unpublished.

1878.

Microscopy and Histology of the Dental Tissues. Missouri Den. Journal, Vol. 10, 1878, pp. 221, 263, 347, 388.
Dental Chart. Missouri Den. Journal, Vol. 10, 1878, p. 159.
An Investigation of the Causes of the Discoloration of the Roots of Teeth. Missouri Den. Journal, Vol. 10, 1878, p. 159.
Dental Education. Discussion. Amer. Den. Assn. Dental Cosmos, Vol. 20, 1878, p. 37.
Histology. Report of Committee. Odontoblasts. Amer. Den. Assn. Transactions, 1878, p. 65. Dental Cosmos, Vol. 20, 1878, p. 546. Disc., p. 547.
The Distribution of Living Matter in Human Dentine, Cement and Enamel. Discussion. Amer. Den. Assn. Transactions, 1878, p. 126. Dental Cosmos, Vol. 20, 1878, p. 549.
President's Address. Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 25.
Dental Neuralgia. Ill. S. Den. Soc. Transactions, 1878, p. 26. Disc., p. 40. Missouri Den. Journal, Vol. 10, 1878, p. 669.
Why Do Operations Fail? Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 57.
Are We Progressing? Discussion. Ill. S. Den. Soc. Transactions, 1878, pp. 57, 59.
Filling Proximal Cavities in Bicuspids and Molars. Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 67.
The Epithelia and Some of Their Derivatives, Especially the Dental Germs. Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 75.
Operative Instruments. Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 81.
Bleaching Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 88.
Is Dentistry a Specialty of Medicine. Discussion. Ill. S. Den. Soc. Transactions, 1878, p. 97.
The Pathology of Scarlet Fever. 151 p. Morgan County (Ill.) Medical Soc., 1878. Unpublished.
Dental Surgery. 15 p. Alumni Assn. St. Louis Medical College, 1878. Unpublished.
Contractile Tissue. 32 p., 2 Illus. 1878. Unpublished.
Originality. Translation. 16 p. Literary Union, Jacksonville, Ill., 1878. Unpublished.
The Walk Under the Lindens. Translation. 20 p. 1878. Unpublished.

1879.

Amyl-Nitrite. Discussion. Ill. S. Den. Soc. Transactions, 1879, p. 39.
Extraction of Dental Pulp and Root Filling. Discussion. Ill. S. Den. Soc. Transactions, 1879, pp. 61, 63.
An Odontome (with mention of seven other cases reported). Ill. S. Den. Soc. Transactions, 1879, p. 65. Disc., p. 69. Missouri Den. Journal, Vol. 12, 1880, p. 102.
Mechanical Dentistry. Discussion, Ill. S. Den. Soc. Transactions, 1879, p. 75.
Dental Education. Discussion. Ill. S. Den. Soc. Transactions, 1879, p. 86.
Anesthetics. Discussion. Ill. S. Den. Soc. Transactions, 1879, p. 104.

Operative Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1879, p. 108.
Extraction of First Molars. Discussion. Ill. S. Den. Soc. Transactions, 1879, p. 112.
The Development of the Arts. 75 p. Literary Union, Jacksonville, Ill., 1879. Unpublished.

1880.

Report on Scarlet Fever, with Draft of an Ordinance. 35 p. Morgan County (Ill.) Medical Soc., 1880. Unpublished.
Nervous Reflex Action. Discussion. Ill. S. Den. Soc. Transactions, 1880, p. 32.
Treatment of Teeth with Dead Pulps and Alveolar Abscess. Discussion. Ill. S. Den. Soc. Transactions, 1880, p. 46.
Carbolic Acid and Creosote: Their Chemistry and Therapeutical Application to the Practice of Dentistry. Discussion. Ill. S. Den. Transactions, 1880, p. 63.
Some Points in the Natural History of Caries of the Teeth, and the Value of Filling for its Arrest. Ill. S. Den. Soc. Transactions, 1880, p. 77. Disc., p. 100. Missouri Dental Journal, Vol. 12, 1880, p. 389.
Saliva: Its Characteristics in Health and Disease. Discussion. Ill. S. Den. Soc. Transactions, 1880, pp. 111, 113.
The Basis of Morality. 6 p. Literary Union, Jacksonville, Ill., 1880. Unpublished.

1881.

Response to Address of Welcome. Ill. S. Den. Soc. Transactions, 1881, p. 8.
Treatment of Teeth with Dead or Dying Pulps. Also, Treatment of Alveolar Abscess. Discussion. Ill. S. Den. Soc. Transactions, 1881, pp. 41, 44.
Dental Hygiene. Discussion. Ill. S. Den. Soc. Transactions, 1881, pp. 56, 65.
Fractures of the Inferior Maxilla. 40 Illus. for paper by Dr. T. L. Gilmer. Ill. S. Den. Soc. Transactions, 1881, p. 67. Ohio Journal, Vol. 2, 1882, pp. 14, 57, 112.
Fractures of the Inferior Maxilla. Discussion. Ill. S. Den. Soc. Transactions, 1881, p. 104.
Development of the Enamel. Discussion. Ill. S. Den. Soc. Transactions, 1881, p. 110.
The Chemistry and Physiological Action of Mercury as Used in Amalgam Fillings. Discussion. Ill. S. Den. Soc. Transactions, 1881, p. 123.
What Must Be the Preparation for the Successful Practice of Dentistry in the Future? Discussion. Ill. S. Den. Soc. Transactions, 1881, p. 133.
Operative Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1881, p. 152.
Characteristics of Saliva in Syphilitics. Discussion. Ill. S. Den. Soc. Transactions, 1881, p. 168.
A List of Dental Books, Ancient and Modern. 36 p. 1881. Unpublished.
Studies of Fossil Woods. 6 p., 12 Illus. Literary Union, Jacksonville, Ill., 1881. Unpublished.
Salicylic Acid as an Antiseptic, by H. Humm. Translation. 60 p. 1881. Unpublished.
The Microscope and Its Uses. 15 p. Lecture to Students of Jacksonville Female Academy, 1881. Unpublished.
Subperiosteal Inflammation. 48 p. Medical Club, Jacksonville, Ill., 1881. Unpublished.
Address at Annual Meeting of Jacksonville (Ill.) Microscopical Society. 8 p. 1881. Unpublished.

1882.

Case Having Roots of a Full Denture, but No Crowns. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 39.
Operative Dentistry: Essential Elements of Success. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 83.
Methods and Materials for Saving Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 83.
Phagedena Pericementi. Ill. S. Den. Soc. Transactions, 1882, p. 93. Disc., p. 110. Ohio Journal, Vol. 3, 1883, pp. 9, 57.
Caries and Necrosis of the Maxillary Bones. Ill. S. Den. Soc. Transactions, 1882, p. 110.
High Civilization Not the Cause of Tooth Decay. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 160.
Regulating Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 168.
Quinine: Its Uses in Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 183.
Periodontitis: Cause and Treatment. Discussion. Ill. S. Den. Soc. Transactions, 1882, p. 183.
Scars of the Enamel. 7 p. 1882. Unpublished.
Inflammation. 31 p. 1882. Unpublished.
Wind and Storm. 54 p. A Series of Lectures Before the Jacksonville (Ill.) Y. M. C. A., 1882. Unpublished.
Progress of Civilization. 34 p. Literary Union, Jacksonville, Ill., 1882. Unpublished.

1883.

Chart Showing Lines of Contemporaneous Calcification of the Teeth. Ill. S. Den. Soc. Transactions, 1883. Frontispiece.
Introduction of Bromide of Ethyl as an Anesthetic for Dental Purposes or Any Very Short Operation. Ill. S. Den. Soc. Transactions, 1883, p. 67. Disc., p. 68.
Dento-Embryonal Histology. Discussion. Ill. S. Den. Soc. Transactions, 1883, p. 77.
Operative Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1883, p. 96.
Removal of an Osteo-Sarcoma. Discussion. Ill. S. Den. Soc. Transactions, 1883, p. 125.

Compound Fracture of the Inferior Maxillary. Discussion. Ill. S. Den. Soc. Transactions, 1883, p. 127.
Best Methods of Correcting Irregularities. Discussion. Ill. S. Den. Soc. Transactions, 1883, p. 132.
Atmospheric Pressure in Its Relation to Artificial Dentures. Ill. S. Den. Soc. Transactions, 1883, p. 141.
The Practical Relations of Observation to Thought. 8 p. Literary Union, Jacksonville, Ill., 1883. Unpublished.
What Is Solution? 10 p. 1883. Unpublished.

1884.

Diseases of Peridental Membrane and Associate Parts. Archives of Dentistry, Vol. 1, 1884, p. 48.
Exposed Dental Pulps and Their Treatment. Discussion. Ill. S. Den. Soc. Transactions, 1884, p. 44.
Reflex Pain. Discussion. Ill. S. Den. Soc. Transactions, 1884, p. 57.
The Origin of Defective Enamel. Discussion. Ill. S. Den. Soc. Transactions, 1884, p. 77.
Inflammation. Discussion. Ill. S. Den. Soc. Transactions, 1884, p. 89.
Specialists and Specialties. Ill. S. Den. Soc. Transactions, 1884, p. 90. Disc., p. 100.
Dento-Embryonal Histology. Discussion. Ill. S. Den. Soc. Transactions, 1884, p. 127.
Teeth of the Mammalia. 14 p. 1884. Unpublished.
Painless Operating with Carbolic Acid. 4 p. 1884. Unpublished.
The Herbst Method of Filling Teeth. Translation. Ohio Journal, Vol. 4, 1884, pp. 66, 126.
A Contribution to the Theory of Sight. Translation. 20 p. 1884. Unpublished.
The City Waterworks. 28 p. Literary Union, Jacksonville, Ill., 1884. Unpublished.
Waste Products of Thought. 12 p. Inaugural Address, Literary Union, Jacksonville, Ill., 1884. Unpublished.
Address at the Opening of the Chicago College of Dental Surgery, Session 1884-5. Archives of Dentistry, Vol. 1, 1884, p. 494.

1885.

Dental Caries, and Its Relation to the Germ Theory of Disease, Section of Oral and Dental Surgery. Amer. Med. Assn. Archives of Dentistry, Vol. 2, 1885, p. 99.
The Present Status of the Germ Theory of Disease. 50 p. 1885. Unpublished.
Early Diagnosis of Disease of the Kidneys, Especially Bright's Disease. 15 p. Morgan County (Ill.) Medical Soc., 1885. Unpublished.
Prosthetic Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1885, p. 47.
Nervous Matter and Principles of Nervous Action. Discussion. Ill. S. Den. Soc. Transactions, 1885, p. 63.
Errors in Practice Not Always Disadvantageous. Discussion. Ill. S. Den. Soc. Transactions, 1885, pp. 71, 73.
Operative Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1885, pp. 100, 106.
Inflammation. Discussion. Ill. S. Den. Soc. Transactions, 1885, p. 115.
Notes on New Remedies. Discussion. Ill. S. Den. Soc. Transactions, 1885, p. 127.
Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1885, p. 141.
Notes from the Literature of Diseases of the Peridental Membrane. 34 p. 1885. Unpublished.
Some Experiments with Acids. 24 p. 1885. Unpublished.
Removal of the Inferior Maxillary Nerve at the Angle of the Jaw for Neuralgia. Translation. 7 p. 1885. Unpublished.
Notes on the Development of Dentistry. 1885. 23 p. Unpublished.
The Balance of Reason. 20 p. Joint Meeting of Literary Union, Sorosis, Club and Round Table, Jacksonville, Ill., 1885. Unpublished.
The Industrial Picture. 23 p. Literary Union, Jacksonville, Ill., 1885. Unpublished.
Sam Marsden's Race for Life. An Indian Story. 22 p. Unpublished.

1886.

Gelatin-Forming Microorganisms. Independent Practitioner, Vol. 7, 1886, p. 546.
Antiseptics and Disinfectants. Discussion. Ill. S. Den. Soc. Transactions, 1886, pp. 77, 81, 83.
Preparation of Pulp Canals and of Cavities for Filling. Discussion. Ill. S. Den. Soc. Transactions, 1886, p. 119.
Post-Graduate Study. Discussion. Ill. S. Den. Soc. Transactions, 1886, p. 134.
Oral Chemistry. Discussion. Ill. S. Den. Soc. Transactions, 1886, pp. 143, 147.
Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1886, p. 165.
Microorganisms of the Oral Cavity. Ill. S. Den. Soc. Transactions, 1886, p. 180. 5 Illus.
The Development of Teeth. Discussion. N. Y. Odontological Soc. Dental Cosmos, Vol. 28, 1886, p. 377.
Dead Teeth in the Jaws. 7 p. The Medical Record, Chicago, 1886.
Influence of the Middle Man in the Formation of Social Castes in America. 6 p. Literary Union, Jacksonville, Ill., 1886. Unpublished.
Manual Training as An Element in Education. 30 p. Literary Union, Jacksonville, Ill., 1886. Unpublished.
Out Sailing. 46 p. 1886. Unpublished.

1887.

A Study of Histological Characters of the Periosteum and Peridental Membrane. Dental Review, Vol. 1, 1886-7, pp. 1, 57, 113, 169, 234, 290, 354, 411. 67 Illus.
Regulating Appliances. Discussion. Ill. S. Den. Soc. Transactions, 1887, p. 36.
The Retention of Pulpless Teeth in the Jaws. Discussion. Ill. S. Den. Soc. Transactions, 1887, p. 64.
Practical Therapeutics, with Notes on the Application of Special Drugs. Discussion. Ill. S. Den. Soc. Transactions, 1887, p. 84.
Medical Stimulants. Discussion. Ill. S. Den. Soc. Transactions, 1887, p. 94.
Operative Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1887, p. 125.
Operative Dentistry as Applied to Deciduous Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1887, p. 142.
Microorganisms. Ill. S. Den. Soc. Transactions, 1887, p. 162. Ohio Journal, Vol. 7, 1887, p. 265. Dental Review, Vol. 1, 1886-7, p. 625.
Pathology of the Dental Pulp. 15 p. Chicago Odontological Society, 1887. Unpublished.
Recent Theories of the Formation of Pus, Considered with Reference to Dental Operations. Conn. Valley Den. Soc. Independent Practitioner, Vol. 8, 1887, p. 462.
Are Microorganisms Necessary to Pus Formation? Dental Review, Vol. 1, 1886-7, p. 244.
Reverse Pluggers. Dental Review, Vol. 1, 1886-7, p. 481.
That Dead Dog. (Reply to a Criticism by Dr. George Watt on Article on Microbes.) Dental Review, Vol. 1, 1886-7, p. 653.
How to Make and Use Copper Amalgam. Dental Review, Vol. 1, 1886-7, p. 719.
The Man Eater. A Story. 9 p. 1887. Unpubished.
From Quebec Up the Saguenay and Chicoutimi. 52 p. 1887. Unpublished.

1888.

Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1888, p. 73. Dental Review, Vol. 2, 1888, p. 317.
Dental Morphology and the Etiology of Irregularities. Discussion. Ill. S. Den. Soc. Transactions, 1888, p. 91.
Amalgams. Discussion. Ill. S. Den. Soc. Transactions, 1888, p. 143.
An examination of the Physical Forces with Reference to the Germ Theory of Decomposition and Disease. First Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 30, 1888, p. 165. Disc., p. 239.
Contribution to the Knowledge of Tumors of the Jaws. Discussion. First Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 30, 1888, p. 264.
Microscopical Examination of an Implanted Tooth. Discussion. First Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 30, 1888, p. 342.
Studies in Pyorrhea Alvecolaris. Discussion. First Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 30, 1888, p. 426.
Porcelain Teeth; Their Relation and Adaptation; Arrangement of the Teeth; Re-posing of the Features. 22 p., 3 Illus. 1888. Unpublished.
Studies of Enamel with Reference to the Finishing of Margins of Cavitties for Filling. 16 p., 7 Illus. 1888. Unpublished.
Report of a Post-Mortem Examination. (Cardiac Thrombus.) 6 p. Medical Club, Jacksonville, Ill., 1888. Unpublished.
Palato-plasty. Abstract. Dental Review, Vol. 2, 1888, p. 88.
An Impacted Tooth. Dental Review, Vol. 2, 1888, p. 249.
Outline of Course of Study in Operative Dental Technics. Dental Review, Vol. 2, 1888, p. 365.
A Novel Case of Irregularity. Dental Review, Vol. 2, 1888, p. 724.
Antiseptics. Discussion. Chicago Den. Soc. Dental Review, Vol. 2, 1888, p. 519.
Necrosis. Discussion. Wisconsin State Den. Soc. Dental Review, Vol. 2, 1888, p. 607.
Hygienic and Sanitary Dentistry. Discussion. Wisconsin State Den. Soc. Dental Review, Vol. 2, 1888, p. 609.

1889.

Escharotics and Coagulants. Discussion. Ill. S. Den. Soc. Transactions, 1889, p. 121. Dental Review, Vol. 3, 1889, p. 451.
The Development of the Roots of Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1889, p. 128.
The Beneficent Influence of the Illinois State Dental Society. Ill. S. Den. Soc. Transactions, 1889, p. 163.
The Development of the Teeth, the Formation of Dentine, and Its Appearance in Health and Decay. Discussion. Chicago Den. Soc. Dental Cosmos, Vol. 31, 1889, p. 379.
Antiseptics Yet Young. International Den. Journal, Vol. 10, 1889, p. 315.
Calco-globulin. Discussion. Odontological Soc. of Penn. International Den. Journal, Vol. 10, 1889, p. 317.
Annealing Gold. Dental Review, Vol. 3, 1889, p. 20.
Antiseptics. Chicago Den. Soc. Dental Review, Vol. 3, 1889, p. 128. Dental Cosmos, Vol. 31, 1889, p. 285. Disc., p. 291.
New Orleans. 21 p. 1889. Unpublished.

1890.

Dental Science and Literature. Discussion. (Deductions from Dr. Betty's report on the measurements of the jaws of the mound builders.) Ill. S. Den. Soc. Transactions, 1890, p. 71.
The First Molars. Discussion. Ill. S. Den. Soc. Transactions, 1890, p. 132.
Dental Histology and Microorganisms. Discussion. Ill. S. Den. Soc. Transactions, 1890, p. 150.
Nitrification. Dental Review, Vol. 4, 1890, p. 79.
Fermentation and Putrefaction. Dental Review, Vol. 4, 1890, p. 145.
The Interproximal Spaces. Dental Review, Vol. 4, 1890, p. 441.
Advanced Dental Education. Dental Review, Vol. 4, 1890, p. 695.
Oil of Cassia. 11 p. 1890. Unpublished.
Our Police System. 11 p. Literary Union, Jacksonville, Ill., 1890. Unpublished.
National Dental Education, Letter re. Dental Review, Vol. 4, 1890, p. 695.

1891.

The Management of Enamel Margins. Dental Cosmos, Vol. 33, 1891, pp. 1, 10, 347, 440, 526, 48 Illus.
Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1891, p. 76. Dental Review, Vol. 5, 1891, p. 396.
The Preparation of Teeth for Filling. Discussion. Ill. S. Den. Soc. Transactions, 1891, pp. 110, 114, 115, 117. Dental Review, Vol. 5, 1891, pp. 430, 434, 435, 437.
Experimental Studies on the Action of Diffusible Medicinal Agents in Living Teeth and in Pulpless Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1891, pp. 136, 137, 139, 140. Dental Review, Vol. 5, 1891, pp. 456, 457, 459.
A Lantern View of Pulp Chambers and Canals, Showing Typical Forms and Some of the Variations. Discussion. Ill. S. Den. Soc. Transactions, 1891, p. 144. Dental Review, Vol. 5, 1891, p. 464.
Efficiency and Simplicity in Regulating Appliances. Discussion. Ill. S. Den. Soc. Trans-
Address at Opening Session, Northwestern University Dental School, 1891. 26 p. Unpublished.
Anatomy and Physiology as Illustrating the Functions of the Spiritual Man. 6 p. Academe Journal, Jacksonville, Ill., 1891.
How to Rest. 14 p. Literary Union, Jacksonville, Ill., 1891. Unpublished.
What Shall Be Done with the Condemned Pulp? Discussion. Ill. S. Den. Soc. Transactions, 1891, p. 97. Dental Review, Vol. 5, 1891, p. 417.
Pyorrhea Alveolaris and Its Treatment. Discussion. Minn. State Den. Assn. Dental Review, Vol. 5, 1891, p. 755-758.

1892.

On Root Canal Treatment. Included in Symposium. Den. Soc. of State of N. Y. Dental Cosmos, Vol. 34, 1892, p. 552. Disc., p. 562.
The Herbst Method of Treating Pulps. Discussion. Den. Soc. of State of N. Y. Dental Cosmos, Vol. 34, 1892, p. 840.
First and Second Molars—Comparative Liability to Decay. Ohio Journal, Vol. 12, 1892, p. 576.
The Use of Books. Dental Review, Vol. 6, 1892, p. 83.
The Interproximate Spaces. Ill. S. Den. Soc. Transactions, 1892, p. 30. Disc., p. 42. Dental Review, Vol. 6, 1892, p. 441. Disc., p. 473.
Contour Fillings. What They Should Be. Discussion. Ill. S. Den. Soc. Transactions, 1892, p. 83. Dental Review, Vol. 6, 1892, p. 504.
Antiseptic Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1892, p. 107.
The Enamel of the Gingival Line, with Lantern Exhibit. Discussion. Ill. S. Den. Soc. Transactions, 1892, pp. 121, 124. Dental Review, Vol. 6, 1892, pp. 567, 570.
Studies of Saprophitic Moulds. 55 p., 13 Illus. 1892. Unpublished.
Diseases of the Antrum. Discussion. Chicago Den. Soc. Dental Review, Vol. 6, 1892, pp. 227, 231.

1893.

Address of Chairman of Section on Etiology, Pathology and Bacteriology. World's Columbian Dental Congress Transactions, 1893, Vol. 1, p. 325.
Operative Technics. Discussion. World's Columbian Dental Congress Transactions, 1893. Vol. 2, p. 631. Transactions of National School of Dental Technics, 1893-4,, p. 23.
Congenital Defects of Enamel. Discussion. World's Columbian Dental Congress. Dental Cosmos, Vol. 35, 1893, p. 715.
Report of Committee on Dental Nomenclature. World's Columbian Dental Congress Transactions, 1893, Vol. 2, p. 835. Dental Cosmos, Vol. 35, 1893, p. 884. International Den. Journal, Vol. 14, 1893, p. 387.
Nomenclature Relating to Forms of the Dental Arch and Special Positions of the Teeth. Discussion. World's Columbian Dental Congress. Dental Cosmos, Vol. 35, 1893, p. 896.
Pathological Conditions of the Air Cavities of the Cranium Resulting from Dental Lesion. Discussion. World's Columbian Dental Congress. Dental Cosmos, Vol. 35, 1893, p. 927.

Some Principles Governing the Development of Facial Contours in the Practice of Orthodontia. Discussion. World's Columbian Dental Congress. Dental Cosmos, Vol. 35, 1893, p. 965.

Operative Technics. Discussion. World's Columbian Dental Congress. Dental Cosmos, Vol. 35, 1893, p. 1036.

Some Changes That Take Place in and Around the Pulp Canal. Discussion. World's Columbian Dental Congress. Dental Cosmos, Vol. 35, 1893, p. 1071.

Anchorage of Proximate Fillings in the Bicuspids and Molars. Ill. S. Den. Soc. Transactions, 1893, p. 9, 6 Illus. Disc., p. 19. Dental Review, Vol. 7, 1893, p. 429. Ohio Journal, Vol. 13, 1893, p. 383.

The Effect of Eruptive Diseases on the Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 31.

Immediate Root Filling. Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 53. Dental Review, Vol. 7, 1893, p. 597.

Recent Additions to the Therapeutics of Pyorrhea Alveolaris. Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 66.

Things Old, New and Useful in the Operating Room. Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 99.

History of the Progress of Dentistry in the West. Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 125. Dental Review, Vol. 7, 1893, p. 585.

Guardianship of the Teeth—Parental, Personal, Professional. Discussion. Ill. S. Den. Soc. Transaction, 1893, p. 147.

Is Implantation a Successful One? Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 173.

Do Gold Fillings of the Present Day Preserve the Teeth Better Than Those Made Forty Years Ago? Discussion. Ill. S. Den. Soc. Transactions, 1893, p. 177. Dental Review, Vol. 7, 1893, p. 610-615.

Not Tides, but Barometric Waves. (On Lake Michigan.) Chicago Tribune, 1893.

Expansion of the Dental Arch. Discussion. Chicago Den. Soc. Dental Review, Vol. 7, 1893, pp. 220, 222.

1894.

Green Stain on Children's Teeth. Letter in Symposium. Den. Soc. State of N. Y. Dental Cosmos, Vol. 36, 1894, p. 543.

Etiology of Dental Caries. Discussion. Ill. S. Den. Soc. Transactions, 1894, pp. 33, 39.

Amalgam Fillings. Discussion. Ill. S. Den. Soc. Transactions, 1894, p. 87.

Reciprocation of Force in Orthodontia. Discussion. Ill. S. Den. Soc. Transactions, 1894, p. 121.

Operative Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1894, p. 134.

Chicago Sanitary Canal and Waterway. 17 p. Literary Union, Jacksonville, Ill. Unpublished.

Relative to Immediate Root Filling. Discussion. Chicago Den. Soc. Dental Review, Vol. 8, 1894, p. 186.

Marginal Lines of Fillings. Discussion. Chicago Den. Soc. Dental Review, Vol. 8, 1894, pp. 192, 193.

Diseases of the Peridental Membrane and the Uric Acid Diathesis. Dental Review, Vol. 8, 1894, p. 449.

1895.

An Investigation of the Physical Characters of the Human Teeth in Relation to Their Diseases and to the Practical Dental Operations, Together with the Physical Characters of Filling Materials. Dental Cosmos, Vol. 37, 1895, pp. 353, 469, 553, 637 and 737. 18 Illus.

Dental Nomenclature. Discussion. Amer. Den. Assn. Dental Cosmos, Vol. 37, 1895, p. 884.

The Office and Eccentricities of the Dental Pulp. The Necessity of and Methods for Better Pulp Protection in Filling Teeth. Discussion. Dental Cosmos, Vol. 37, 1895, p. 1053.

The Saving of the First Tooth. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 20. Dental Review, Vol. 9, 1895, p. 484.

A Simple Method of Keeping Daily Records. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 40. Dental Review, Vol. 9, 1895, p. 494.

Results of Experimental Root Canal Fillings. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 53. Dental Review, Vol. 9, 1895, p. 545.

The Human Tongue. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 71. Dental Review, Vol. 9, 1895, p. 556.

Combinations of Metals in Amalgams. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 78. Dental Review, Vol. 9, 1895, p. 560.

A Commentary on the Illinois Statutes of 1881 Regulating the Practice of Dentistry. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 149. Dental Review, Vol. 9, 1895, p. 590.

Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 175. Dental Review, Vol. 9, 1895, p. 666.

Report of Clinics. Discussion. Ill. S. Den. Soc. Transactions, 1895, p. 187. Dental Review, Vol. 9, 1895, p. 668.

Cleft Palate. Discussion. Chicago Den. Soc. Dental Review, Vol. 9, 1895, pp. 114, 120.

Removal of Inferior Dental Nerve. Discussion. Chicago Den. Soc. Dental Review, Vol. 9, 1895, p. 188.

Irregularities. Discussion. (Nomenclature.) Chicago Den. Soc. Dental Review, Vol. 9, 1895, p. 865.

1896.

Practical Utility of Accurate Studies of the Physical Properties of the Teeth and of Filling Materials. N. Y. Odontological Soc. Dental Cosmos, Vol. 38, 1896, p. 296. Disc., p. 333. Correction, p. 512.

The Physical Properties of the Silver-Tin Amalgams. Dental Cosmos, Vol. 38, 1896, p. 965.

The Effect of Oxydation on Cut Alloys for Dental Amalgams. Dental Cosmos, Vol. 38, 1896, pp. 43, 48.

Shock. Discussion. Ill. S. Den. Soc. Transactions, 1896, p. 62. Dental Review, Vol. 10, 1896, p. 515.

Lactic Acid. Discussion. Ill. S. Den. Soc. Transactions, 1896, p. 132. Dental Review, Vol. 10, 1896, p. 480.

Bridges. Discussion. Ill. S. Den. Soc. Transactions, 1896, p. 134. Dental Review, Vol. 10, 1896, p. 482.

Amalgams. Discussion. Chicago Den. Soc. Dental Review, Vol. 10, 1896, p. 202.

1897.

Recent Improvements in Filling Teeth. Chicago Den. Soc. Dental Review, Vol. 11, 1897, p. 77. Dental Cosmos. Vol. 39, 1897, p. 321. Dental Digest, Vol. 3, 1897, p. 63.

A Contribution to the Study of Pathology of Enamel. Discussion. N. Y. Odontological Soc. Dental Cosmos, Vol. 39, 1897, pp. 403, 415.

Answer to a Criticism Re Alloys. Dental Digest, Vol. 3, 1897, p. 689.

Reply to Editorial Comment Re Extension for Prevention. Dental Digest, Vol. 3, 1897, p. 133.

Peculiar Pathological Perceptions. Discussion. Chicago Den. Soc. Dental Review, Vol. 11, 1897, p. 258.

Immediate Separation of Teeth. Clinic. Chicago Den. Soc. Dental Review, Vol. 11, 1897, p. 287.

The Dental Museum. Discussion. Chicago Den. Soc. Dental Review, Vol. 11, 1897, p. 387.

Amalgam. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 11, 1897, p. 400.

Art in Dentistry. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 11, 1897, p. 791.

Reproduction of Gum Tissue. Discussion. Chicago Den. Soc. Dental Review, Vol. 11, 1897, p. 868.

1898.

Instrument Nomenclature with Reference to Instrumentation. National School of Dental Technics. Transactions, 1897-8, p. 37. Dental Digest, Vol. 4, 1898, p. 1. Items of Interest. Vol. 19, 1898, p. 279. Ohio Journal. Vol. 18, 1898, p. 139.

Prosthetic Technique. Discussion. National School of Dental Technics. Transactions, 1897-8, p. 35.

Operative Technics. Discussion. National School of Dental Technics. Transactions, 1897-8, p. 92.

Teaching Methods. Symposium. Discussion. National School of Dental Technics. Transactions, 1897-8, p. 113.

Western Dental Journal on Amalgam Tests. Dental Digest, Vol. 4, 1898, p. 297.

President's Address. Discussion. Ill. S. Den. Soc. Transactions, 1898, p. 26.

Amalgam. Discussion. Ill. S. Den. Soc. Transactions, 1898, pp. 40, 46. Dental Review, Vol. 12, 1898, p. 548.

Why Coagulants Diffuse Through Dentin. Discussion. Ill. S. Den. Soc. Transactions, 1898, p. 66. Dental Review. Vol. 12, 1898, p. 563.

The Preparation of Cavities. Discussion. Ill. S. Den. Soc. Transactions, 1898, p. 109. Dental Review, Vol. 12, 1898, p. 706.

The Essential Oils and Some Other Agents. Their Antiseptic Value: Also, Their Irritating or Non-Irritating Properties. Discussion. Ill S. Den. Soc. Transactions. 1898, pp. 169, 173. Dental Review, Vol. 12, 1898, p. 631.

Extracting Teeth During Acute Pericementitis. Remarks in Symposium. Northeastern Den. Assn. Dental Cosmos, Vol. 40, 1898, p. 47.

The Advisability of Devitalization. Banding and Removal of Enamel in Crown and Bridge Work. Discussion. Chicago Den. Soc. Dental Review, Vol. 12, 1898, p. 122.

The Welding Property of Gold, with Demonstrations. Odontographic Soc. of Chicago. Dental Review, Vol. 12, 1898, p. 278. Disc., p. 312.

Our Profession. Toast. Tenth Anniversary Odontographic Soc. of Chicago. Dental Review, Vol. 12, 1898, p. 388.

1899.

President's Address. National School of Dental Technics. Transactions, 1898-9, p. 432. Indiana Den. Journal, Vol. 2, 1899, p. 432.

Steel Technics. Discussion. National School of Detnal Technics. Transactions, 1898-9, p. 557. Indiana Den. Journal, Vol. 2, 1899, p. 557.

Cavity Preparation. Discussion. National School of Dental Technics. Transactions, 1898-9, p. 585. Indiana Den. Journal, Vol. 2, 1899, p. 585.
The Fibres and Glands of the Peridental Membrane. Dental Cosmos, Vol. 41, 1899, p. 101, 17 Illus.
Susceptibility and Immunity to Dental Caries. Nat. Den. Assn. Transactions, 1899, p. 196. Disc., p. 253. Dental Cosmos, Vol. 41, 1899, p. 826. Ohio Journal, Vol. 19, 1899, p. 600.
Dental History a Part of the Dental Curriculum. Discussion. Nat. Den. Assn. Dental Cosmos, Vol. 41, 1899, p. 1057.
Manual and Artistic Training in Our Preliminary Education. Discussion. Dental Cosmos, Vol. 41, 1899, p. 1163.
Bacteriological Investigation of Pulp Gangrene. Discussion. Ill. S. Den. Soc. Transactions, 1899, p. 25. Dental Review, Vol. 13, 1899, p. 562.
The Structure of the Enamel with Reference to Cleavage and the Lines and Angles of Cavity Margins. Discussion. Ill. S. Den. Soc. Transactions, 1899, p. 60. Dental Review, Vol. 13, 1899, p. 565.
Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1899, p. 98.
Comparative Dental Anatomy. Discussion. Chicago Den. Soc. Dental Review, Vol. 13, 1899, p. 33.
Inlays and Cements. Discussion. Chicago Den. Soc. Dental Review, Vol. 13, 1899, p. 60.
Evolution of Decay. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 13, 1899, p. 210.
Immediate Regulation. Discussion. Chicago Den. Soc. Dental Review, Vol. 13, 1899, p. 452.
Casting of Aluminum. Discussion. Chicago Den. Soc. Dental Review, Vol. 13, 1899, p. 932.

1900.

The Value of Exact Methods in Operative Dentistry. Union 7th & 8th Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 42, 1900, p. 1245.
Habits Incident to the Dental Profession. Discussion. (Use of Separators.) Ill. S. Den. Soc. Transactions, 1900, p. 25. Dental Review, Vol. 14, 1900, p. 715.
Pyorrhea Alveolaris. Discussion. Ill. S. Den. Soc. Transactions, 1900, p. 48. Dental Review, Vol. 14, 1900, p. 702.
Improvements in Operative Dentistry in Recent Years and the Betterments to Be Expected in the Future. Discussion. Ill. S. Den. Soc. Transactions, 1900, pp. 78, 91. Dental Review, Vol. 14, 1900, pp. 725, 738.
Calcification a Controlling Factor in the Treatment of the Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1900, p. 97. Dental Review, Vol. 14, 1900, p. 646.
Maundynamometer. Ill. S. Den. Soc. Transactions, 1900, p. 165. Dental Review, Vol. 14, 1900, p. 624.

1901.

The Pathology, Chemistry and Therapeutics of Putrescent Pulps. Discussion. Union 7th & 8th Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 43, 1901, p. 187.
Fitting and Anchoring Porcelain Crowns. Discussion. Union 7th & 8th Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 43, 1901, pp. 412, 413.
President's Address. Nat. Den. Assn. Dental Cosmos, Vol. 43, 1901, p. 1074. Dental Digest, Vol. 7, 1901, p. 750. Ohio Journal, Vol. 21, 1901, p. 469.
Extension for Prevention. Items of Interest, Vol. 23, 1901, p. 361.
The Philosophy of Mastication Relative to Dental Prosthesis. Discussion. Ill. S. Den. Soc. Transactions, 1901, p. 36. Dental Digest, Vol. 7, 1901, p. 638.
Anomalous Cases of Malformed Teeth. Discussion. Ill. S. Den. Soc. Transactions, 1901, p. 43. Dental Digest, Vol. 7, 1901, p. 560.
Antiseptic, Germicide, Disinfectant. Discussion. Ill. S. Den. Soc. Transactions, 1901, p. 71. Dental Digest, Vol. 7, 1901, p. 647.
Why Fillings Fail. Discussion. Ill. S. Den. Soc. Transactions, 1901, p. 105. Dental Digest, Vol. 7, 1901, p. 768.
Attachment of Implanted Teeth. Discussion, Natl. Den. Assn. Dental Digest, Vol. 7, 1901, p. 888.
A Brief History of Northwestern University Dental School. 10 p. Published in the Students' Annual: Purple and Gold, 1901.
The Need of Greater Intelligence in Filling Operations. G. V. Black Club of St. Paul. 27 p. Unpublished.
Postgraduate Study. 30 p. Address to Senior Class, University of Pennsylvania, 1901. Unpublished.
Usefulness of the Dental Pulp. Items of Interest, Vol. 23, 1901, p. 208.
President's Address. Discussion. Institute of Dental Pegagogics Transactions, 1900-01, p. 26. Dental Review, Vol. 15, 1901, p. 809.
Teaching Materia Medica and Therapeutics. Discussion. Institute of Dental Pedagogics Transactions, 1900-01, p. 64. Dental Review, Vol. 15, 1901, pp. 820, 831.
Study of Susceptibility and Immunity. Discussion. Institute of Dental Pedagogics Transactions, 1900-01, p. 74.
Use of the Lantern in Teaching Histology. Discussion. Institute of Dental Pedagogics Transactions, 1900-01, p. 99. Dental Review, Vol. 15, 1901, p. 599.
Class Room Teaching of Oral Surgery. Discussion. Institute of Dental Pegagogics Transactions, 1900-01, p. 131.

New Features in Teaching Dental Anatomy and Dental Technics. Discussion. Institute of Dental Pedagogics Transactions, 1900-01, p. 146.

The Relative Duties of the National Board of Dental Examiners and the National Association of Dental Faculties. Discussion. Chicago Den. Soc. Dental Review, Vol. 15, 1901, p. 53.

Actinomycosis. Discussion. Chicago Den. Soc. Dental Review, Vol. 15, 1901, pp. 333, 336.

The Educational Outlook in Dentistry. Discussion. Chicago Den. Soc. Dental Review, Vol. 15, 1901, p. 459.

Immune Areas in Their Relation to Cavity Preparation. Chicago Den. Soc. Dental Review, Vol. 15, 1901, p. 780.

Introduction of Dr. W. D. Miller at Banquet in His Honor. Dental Review, Vol. 15, 1901, p. 1184.

1902.

Management of the Infirmary Clinic in Dental Schools. Institute of Den. Pedagogics. Transacitons, 1901-2, p. 63. Dental Cosmos, Vol. 44, 1902, p. 309.

Action of Oxyphosphate Cement upon the Dental Pulp. Dental Cosmos, Vol. 44, 1902, p. 655.

A Restatement of the Principles of Extension for Prevention, and Some Correlated Subjects. Dental Review, Vol. 16, 1902, p. 439. Dental Cosmos, Vol. 44, 1902, p. 882.

To Color Arsenical Paste. Dental Cosmos, Vol. 44, 1902, p. 893.

Dental Science and Literature, Report of Committee. Ill. S. Den. Soc. Transactions, 1902, p. 136. Dental Digest, Vol. 8, 1902, p. 641.

Dental Nomenclature. Discussion. Ill. S. Den. Soc. Transactions, 1902, p. 25. Dental Digest, Vol. 8, 1902, p. 854.

Professional Ethics versus Patents. Discussion. Ill. S. Den. Soc. Transactions, 1902, p. 47. Dental Digest, Vol. 8, 1902, p. 829.

Our Predecessors. Discussion. Ill. S. Den. Soc. Transactions, 1902, p. 77. Dental Digest, Vol. 8, 1902, p. 967.

Preliminary Education. Discussion. Ill. S. Den. Soc. Transactions, 1902, p. 87. Dental Digest, Vol. 8, 1902, p. 982.

Extension for Prevention. Discussion. Ill. S. Den. Soc. Transactions, 1902, p. 112. Dental Digest, Vol. 8, 1902, p. 944.

First Permanent Molar. Discussion. Ill. S. Den. Soc. Transactions, 1902, p. 125. Dental Digest, Vol. 8, 1902, p. 1075.

President's Address. Discussion. Institute of Dental Pedagogics Transactions, 1901-2, p. 22.

Executive Work of Faculties. Discussion. Institute of Dental Pedagogics Transactions, 1901-2, p. 41.

Teaching of Bacteriology. Discussion. Institute of Dental Pedagogics Transactions, 1901-2, pp. 151, 156.

A Study of the Recurrence of Caries. 14 p. 1902. Unpublished.

The Dentist and His Duty. Discussion. Chicago Den. Soc. Dental Review, Vol. 16, 1902, p. 389.

The Power of Association. Discussion. Annual Clinic, School of Dentistry, University of Illinois. Dental Review, Vol. 16, 1902, p. 563.

Care, Preparation and Condensation of Gold in a Cavity. Discussion. Chicago Den. Soc. Dental Review, Vol. 16, 1902, p. 578.

Treatment of Antrum and Alveolar Abscess. Discussion. Chicago Den. Soc. Dental Review, Vol. 16, 1902, p. 663.

Syphilis in Dental Practice. Discussion. Chicago Den. Soc. Dental Review, Vol. 16, 1902, p. 822.

Discoloration and Bleaching of Teeth. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 16, 1902, pp. 834, 839.

1903.

President's Address. Discussion. Ill. S. Den. Soc. Transactions, 1903, p. 17. Dental Digest, Vol. 9, 1903, p. 816.

Dental Science and Literature, Report of Committee. Ill. S. Den. Soc. Transactions, 1903, p. 36. Dental Digest, Vol. 9, 1903, p. 1049.

A Plea for Uniformity in the Preparation of Roots and the Construction of Bridgework. Discussion. Nat. Den. Assn. Dental Digest, Vol. 9, 1903, p. 684.

Porcelain Inlays. Discussion. Nat. Den. Assn. Transactions, 1903. Dental Digest, Vol. 10, 1904, p. 292.

Points in Diagnosis in Cases Presenting Neuralgic Symptoms. Northwestern Den. Journal, Vol. 1, 1903, p. 11.

A Few Strange Freaks in Tooth Forms. Northwestern Den. Journal, Vol. 1, 1903, p. 63, 7 Illus.

Management of the Universal Separator. Northwestern Dental Journal, Vol. 1, 1903, p. 133, 4 Illus.

Physical Character of the Hard Structures of the Teeth. Dental Cosmos, Vol. 45, 1903, p. 696.

President's Address. Discussion. Institute of Dental Pedagogics. Dental Review, Vol. 17, 1903, p. 571.

Systematic Arrangement of Lectures in Operative Dentistry. Discussion. Institute of Dental Pedagogics. Dental Review, Vol. 17, 1903, p. 762.

Teaching Embryology. Discussion. Institute of Dental Pedagogics. Dental Review, Vol. 17, 1903, p. 1064.

Teaching Applied Physics. Institute of Dental Pedagogics. Dental Review, Vol. 17, 1903, p. 1113. Disc., p. 1151.

Management of Teaching by Demonstrators in the Infirmary. Discussion. Institute of Dental Pedagogics. Dental Review, Vol. 17, 1903, pp. 1176, 1184.

Dental Education. Discussion. Chicago Den. Soc. Dental Review, Vol. 17, 1903, p. 215.

Caries. Odontographic Soc. of Chicago. Dental Review, Vol. 17, 1903, pp. 229, 232.

The Saliva as an Index to Faulty Metabolism. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 17, 1903, p. 437.

Antiseptics, Disinfectants, Germicides. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 17, 1903, p. 449.

1904.

Desirability of Four Year Course in Dental Schools. Institute of Dental Pedagogics. Items of Interest, Vol. 26, 1904, p. 350.

An Ideal in Pathology. Discussion. Institute of Dental Pedagogics. Items of Interest. Vol. 26, 1904, p. 461.

Dental Science and Literature, Report of Committee. Ill. S. Den. Soc. Transactions, 1904, p. 21.

President's Address. Discussion. Ill. S. Den. Soc. Transactions, 1904, p. 20.

Microscopic Study of Cements. Discussion. Ill. S. Den. Soc. Transactions, 1904, p. 93. Dental Digest, Vol. 11, 1905, p. 12.

Limitations of Extension for Prevention. G. V. Black Club of St. Paul. Dental Summary, Vol. 24, 1904, p. 173. Dental Review, Vol. 18, 1904, p. 519.

Prophylactic Value of Form of Proximate Fillings. Dental Summary, Vol. 24, 1904, p. 83. Dental Cosmos, Vol. 46, 1904, p. 242.

Atrophied Teeth. Northwestern Den. Journal, Vol. 2, 1904, p. 55, 7 Illus.

Social Dangers to Young Men in the Professional Schools. Address before Northwestern University Y. M. C. A., 1904. 24 p. Unpublished.

Diagnosis and Treatment of Fractures of the Inferior Maxilla. Discussion. Odontographic Soc. of Chicago. Dental Review, Vol. 18, 1904, p. 775.

1905.

Finger Power in Dentistry. Northwestern Den. Journal, Vol. 3, 1905, June issue, p. 8, 4 Illus.

A Consideration of the Conditions Pointing to the Grave Results in and the Causes of Death from Alveolar Abscess. Northwestern Den. Journal, Vol. 3, 1905, Sept. issue, p. 11. Dental Digest, Vol. 11, 1905, p. 1240.

Extension for Prevention. First Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 47, 1905, p. 860.

Manudynamometer. First Dist. Den. Soc. N. Y. Dental Cosmos, Vol. 47, 1905, p. 999.

President's Address. Discussion. Ill. S. Den. Soc. Transactions, 1905, p. 21. Dental Review, Vol. 19, 1905, p. 550.

Oral Prophylaxis and Pyorrhea Alveolaris. Discussion. Ill. S. Den. Soc. Transactions, 1905, p. 60. Dental Review, Vol. 19, 1905, p. 635.

Chemical Erosions of the Teeth. Discussion. Chicago Den. Soc. Dental Review, Vol. 19, 1905, p. 354.

Dental Education. Discussion. Chicago Den. Soc. Dental Review, Vol. 19, 1905, p. 663.

History of Northwestern University Dental School. Chapter in "Northwestern University. A History." Vol. 4, p. 123, 1905.

1906.

Consideration of Evidence in Scientific Investigation. Den. Soc. State of N. Y. Dental Cosmos, Vol. 48, 1906, p. 1015. Dental Digest, Vol. 12, 1906, p. 1167.

Preparation of Cavities for Metallic Fillings. Ohio S. Den. Soc. Dental Summary, Vol. 26, 1906, p. 548.

Impression of the Conditions in Dental Education and Dental Practice in Europe. Northwestern Den. Journal, Vol. 4, 1906, p. 61.

President's Address. Discussion. Ill. S. Den. Soc. Transactions, 1906, p. 23. Dental Review, Vol. 20, 1906, p. 725.

Our Younger Patients. Discussion. Ill. S. Den. Soc. Transactions, 1906, p. 58, 61, Dental Review, Vol. 20, 1906, p. 737, 741.

Reminiscences of Forty Odd Years of Practice. Discussion. Ill. S. Den. Soc. Transactions, 1906, p. 71. Dental Review, Vol. 20, 1906, p. 811.

More Conservative Use of Anesthetics. Discussion. Ill. S. Den. Soc. Transactions, 1906, p. 106. Dental Review, Vol. 20, 1906, p. 839.

Duties and Obligations of Dental Examiners. Discussion. Ill. S. Den. Soc. Transactions, 1906, p. 150. Dental Review, Vol. 20, 1906, p. 924.

Atrophied Teeth. Chicago Odontographic Soc. Dental Review, Vol. 20, 1906, pp. 1, 105, 44 Illus. Disc., p. 154.

Why and How I Fill Children's Teeth with Gold. Discussion. Chicago Odontographic Soc. Dental Review, Vol. 20, 1906, p. 496.

Prosthetic Dentistry. Discussion. Chicago Odontographic Soc. Dental Review, Vol. 20, 1906, p. 624.
Herbst Burnisher and Gold Fillings. Discussion. Chicago Odontographic Soc. Dental Review, Vol. 20, p. 804.

1907.

Studies of the Beginning of Caries in the Enamel, with Reference to Filling Teeth. American Dental Society of Europe. Dental Review, Vol. 21, 1907, p. 144. Disc., p. 210. Dental Digest, Vol. 13, 1907, p. 314.
Retention of Pulpless Teeth in the Jaws. Discussion. American Den. Soc. of Europe. Dental Review, Vol. 21, 1907, pp. 352, 356.
Limitations of Dental Education. Ill. S. Den. Soc. Transactions, 1907, p. 25. Disc., p. 43. Dental Review, Vol. 21, 1907, p. 705. Disc., p. 766. Dental Digest, Vol. 13, 1907, p. 862.
Alveolar Infections. Extraction vs. Retention. Dental Cosmos, Vol. 49, p. 713.
The Dentist of Tomorrow. Discussion. Ill. S. Den. Soc. Transactions, 1907, p. 72. Dental Review, Vol. 21, 1907, p. 840.
Some Common Mistakes in Orthodontia. Discussion. Ill. S. Den. Soc. Transactions, 1907, p. 131. Dental Review, Vol. 21, 1907, p. 1048.
Chemistry of Pulp Decomposition and Treatment. Discussion. Ill. S. Den. Soc. Transactions, 1907, p. 160. Dental Review, Vol. 21, 1907, p. 1134.
Dental Research Work. Discussion. Ill. S. Den. Soc. Transactions, 1907, p. 178. Dental Review, Vol. 21, 1907, p. 1144.
A Consideration of the Beginnings of Caries in Enamel with Reference to Filling Operations. St. Louis Society of Dental Science. Dental Brief, Vol. 12, 1907, p. 131.
President's Address. Discussion. Institute of Dental Pedagogics Transactions, 1906-7, p. 30.
Operative Technics. Discussion. Institute of Dental Pedagogics Transactions, 1906-7, pp. 73, 77.
Nomenclature. Discussion. Institute of Dental Pedagogics Transactions, 1906-7, pp. 102, 105.
Hard and Soft Teeth. Dental Review, Vol. 21, 1907, p. 382.
Amalgam. Discussion. Chicago Odontographic Soc. Dental Review, Vol. 21, 1907, pp. 445, 457.
Report of Table Clinic with the Manudynamometer. G. V. Black Club of St. Paul. Dental Review, Vol. 21, 1907, p. 497.
The Nature of Blows and the Relation of the Size of Plugger Points to Force as Used in Filling Teeth. G. V. Black Club of St. Paul. Dental Review, Vol. 21, 1907, p. 499, 9 Illus.
Preparation of Amalgam for Filling. Dental Review, Vol. 21, 1907, p. 607.
Remuneration for Services. Dental Review, Vol. 21, 1907, p. 879.

1908.

Hand Made Lantern Slides. Northwestern Den. Journal, Vol. 6, 1908, p. 89.
Antiseptic Quality of the Saliva. Den. Soc. State of N. Y. Dental Cosmos, Vol. 50, 1908, p. 1423.
President's Address. (Study Clubs.) Discussion. Ill. S. Den. Soc. Transactions, 1908, p. 16. Dental Review, Vol. 22, 1908, p. 333.
Report of Committee on Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1908, p. 38.
Putrefaction and Pathological Changes in Tissue. Discussion. Ill. S. Den. Soc. Transactions, 1908, p. 129. Dental Review, Vol. 22, 1908, p. 745.
Filling Materials (Re Specific Gravity of Cast Gold). Discussion. Ill. S. Den. Soc. Transactions, 1908, p. 172.
Superiority of Natural Teeth Over Artificial Substitutes. Discussion. Ill. S. Den. Soc. Transactions, 1908, p. 243. Dental Review, Vol. 22, 1908, p. 865.
Good Fellowship. Dental Review, Vol. 22, 1908, p. 626.
Dr. Miller's Work. (Part of Report of Committee.) Dental Review, Vol. 22, 1908, p. 963.
Treatment of Pathological Conditions in Roots. Dental Review, Vol. 22, 1908, p. 999.
Occlusion of Artificial Teeth. Dental Review, Vol. 22, 1908, p. 1098.

1909.

Supernumerary Teeth. Indiana State Den. Soc., Dental Summary, Vol. 20, 1909, pp. 1, 83, 90 Illus.
A Plea for the Wider Utilization of What Is Known in Filling Teeth. Penn. State Den. Soc. Dental Cosmos, Vol. 51, 1909, p. 1390.
Gold Fillings. Discussion. Penn. State Den. Soc. Dental Cosmos, Vol. 51, 1909, p. 1307.
The Behavior of Certain Metals in the Mouth. Discussion. Nat. Den. Assn. Dental Cosmos, Vol. 51, 1909, p. 1087.
Mastication and Insalivation of Food. Den. Soc. State N. Y. Dental Cosmos, Vol. 51, 1909, p. 1187.
Dental Science as a Part of Universal Literature. Discussion. Nat. Den. Assn. Dental Cosmos, Vol. 51, 1909, p. 1218.
President's Address. Discussion. Institute of Dental Pedagogics Transactions, 1908-9, p. 29.

Report of Commission on Text-Books. Discussion. Institute of Dental Pedagogics Transactions, 1908-9, pp. 38, 41, 56, 58.
Teaching Crown and Bridgework. Discussion. Institute of Dental Pedagogics Transactions, 1908-9, p. 136.
How to Teach Clinical Operative Dentistry. Discussion. Institute of Dental Pedagogics Transactions, 1908-9, p. 189.
Making Hand Made Lantern Slides for Supplying Immediate Needs. Institute of Dental Pedagogics Transactions, 1908-9, p. 198.
Standardizing Our Methods of Teaching. Discussion. Institute of Dental Pedagogics Transactions, 1908-9, p. 149.
Our Little Patients. Discussion. Chicago Odontographic Soc. Dental Review, Vol. 23, 1909, p. 92.
First Permanent Molar. Discussion. Chicago Odontographic Soc. Dental Review. Vol. 23, 1909, pp. 268, 278.
Conditions of Saliva in Relation to Dental Caries. Chicago Odontographic Soc. Dental Review, Vol. 23, 1909, p. 301. Disc., p. 334.
Gold Fillings in Children's Teeth. Dental Review, Vol. 23, 1909, p. 475.
The Contact Point and Its Function, Considered with Reference to Dental Caries and Its Treatment. Chicago Odontographic Soc. Dental Review, Vol. 23, 1909, p. 595. Disc., p. 658.
The Contact Point. Dental Review, Vol. 23, 1909, p. 777.
Caries of Enamel. Dental Review, Vol. 23, 1909, p. 1117.
Dental Science and Literature. Discussion. Ill. S. Den. Soc. Transactions, 1909, p. 39. Dental Review, Vol. 23, 1909, p. 679.
The Possibilities of Closer Cooperation Between the Dental and Medical Professions. Discussion. Ill. S. Den. Soc. Transactions, 1909, p. 112. Dental Review, Vol. 23, 1909, p. 856.
Some Problems in Dentistry Which Should Have Further Development or a Wider Diffusion of Practical Information. Ill. S. Den. Soc. Transactions, 1909, p. 134. Disc., 140. Dental Review, Vol. 23, 1909, p. 924. Disc., 976.
Investigation of Mottled Enamel. Chicago Odontographic Soc., September, 1909. Not yet published.
A Plea for Greater Earnestness in the Study of Caries of the Enamel in Its Relation to the Practice of Dentistry. Academy of Stomatology, Philadelphia. November, 1909. Not yet published.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

THE BANQUET TO DR. BLACK.

As will be seen by our readers, most of the present issue of the DENTAL REVIEW is taken up with an account of the recent banquet to Dr. G. V. Black. We predict that this will be read with a great deal of pleasure by the profession everywhere, not only because of the interest which anything connected with Dr. Black always evokes, but because of the intrinsic excellence of the speeches which were made. It seldom falls to the lot of those sitting at a banquet to listen to addresses so uniformly good. But this was not all. Aside from the masterly speaking, the general brilliancy of the occasion, the most elaborate and expensive presents, the distinguished men in attendance, and the large number present at the banquet, there was something indescribably magnetic in the event which will never be forgotten by those who were fortunate enough to attend.

About 400 sat at the tables besides many who had reserved plates but could not be present. Letters and telegrams were received from all parts of the country and from abroad. It was an outpouring of sentiment and esteem such as is seldom witnessed, and the like of which will not soon be seen again.

The greatest credit for the success of the event is due to the president of the Chicago-Odontographic Society, Dr. W. H. G. Logan, who conceived the idea in the beginning and whose untiring efforts were mainly instrumental in bringing it to a remarkably successful issue. The entire affair, even with the large body in attendance, moved like clock work under his guiding hand.

As for the honored guest of the evening what shall we say of him, more than the many beautiful things which were said by the various speakers? As a man he is really the marvel of the age. By referring to the leading events of his life it will be seen that he was born in 1836, and in his lifetime he has accomplished more perhaps than can be credited to any other one man in the dental profession. More than this he is now apparently in his very prime. He has been so prominently before the profession for many years that it is natural for men to think of him as an old man, but those of us who are close to him know how active are his mental processes and how keen his grasp of the most recent advances in scientific thought. Apparently he is at the most useful period of his career, and the profession may confidently look forward to great things from him in the future. As an evidence of this a reference to the list of his writings compiled in this issue will show that the year 1909 was one of his most prolific. He has plans in hand now for the accomplishment of much in the way of scientific work, and we confidently predict that the dental world is to be more abundantly enriched than ever as the result of his unparalleled and sustained genius. It was a great day for dentistry when Dr. G. V. Black was born, and it was a great day for his friends when they were permitted to honor him around the banquet board on January 29, 1910.

THE EDITORS DESK.

AN AUTOMOBILE TRIP THROUGH EUROPE.

BY DR. FRED W. GETHRO.

[Continued from our February number.]

Paris is one of the most fascinating cities in the world, but after spending a week there, with the side trips to Versailles, Fontainebleau and the many other places too numerous to mention, we were anxious to get out into the open country again. So on the afternoon of July 30th we set our course southeast, following the Seine river, with Switzerland and its grand mountains, lakes and valleys ahead of us. And after Switzerland we were to have Northern Italy with the beautiful Italian lakes to lure us on.

Before leaving Paris I took my French license, which by the way is the one I obtained several years ago and is good for all time, to the German Consul and had it viseéd for a fee of about $2.00. This permitted me to drive in all parts of Germany and Luxembourg.

No special license is required to drive in Switzerland, the Swiss accepting the French license.

I have frequently been asked, "How do you find your way? Don't you get lost a great many times?" The maps are so complete and accurate in every detail that an entire stranger without any knowledge of the language can tour without getting lost or asking a question. Then the sign-boards, which have been placed by the Touring Club of France, give complete information. In addition to the sign-boards are the kilometer stones (a kilometer is about ⅝ of a mile) placed by the government on the national routes, and by the various cantons on the other routes. These kilometer stone posts are placed when the road is built and in most cases mark the number of the route and give the distance to the large cities as well as the local towns. In many parts small stone posts are also placed dividing the kilometer into tenths. In addition to the things mentioned I might also add that when the roads are built the trees are considered a part of the road

The Rhone Glacier.

building and are planted with mathematical precision so many meters apart.

Supplies of oil, gasoline, etc., can be purchased in even the smallest towns and frequently it may be obtained out in the country. It is always sold in cans sealed by the government so one can be sure that it is of good quality and clean. The average price of gasoline is not far from 45 cents a gallon. At first glance many might think that gasoline at 45 cents a gallon would make touring mighty expensive. This is not so and I will explain why. On the smooth finely graded roads of France a small touring car seating five, should average 15 to 18 miles to the gallon. I used a six cylinder car averaging 12 miles to the gallon and it is a well known fact that a six uses a little more gasoline than a four. The distance covered by the average tourist is about 80 miles a day. Granting that gasoline costs 25 cents more per gallon would only make an additional expense of $1.25 per day. This is more than offset by the fact that the other garage expenses are much less than ours. Most hotels have a garage and do not make any charge for storage. Washing and polishing is frequently only 50 cents. Hotel accommodations are at least 50 per cent cheaper

Simplon Pass—Field Workers Returning from Lunch.

than in our country, so the additional charge on gasoline does not mean much. Lubricating oil is about the same price as here although the quality is inferior.

In other words I believe that one can tour in certain parts of France, and this includes some of the best touring to be found anywhere, and tour with a moderate expense. Outside of gasoline almost every other expense is very much less unless it is the bath. This feature is an amusing one. In many parts of Europe, excepting the large cities, the bath is almost a state occasion. There are no rooms with bath and this bath room is usually a very pretentious affair. Prices vary from 50 cents to $1.25. In some places the bath is placed below the level of the floor and one descends several steps to enter a minature swimming pool. When the price of a room is from 50 cents to $1.00 and a bath from 50 cents to $1.25 you can appreciate what I mean when I said it was almost a state occasion.

Hospice Near Top of the Simplon Pass, Where the Traveler Is Gratuitously Cared For.

In quite a few places they charge so much for the room, so much for service, towels, soap, light, etc., so it is well to understand this when making arrangements. Most Europeans think that every American tourist is a millionaire and some do not hesitate to charge accordingly.

We had several days of pleasant touring in Eastern France during which time we passed through Troyes, where our system of Troy weight is supposed to have originated; Dijon, a large commercial town noted as a center for wines, corn and gingerbread, and later Besançon, an important commercial city noted because it produces most of the watches made in France, some 500,000 annually.

We continued almost south from Besançon to Pontarlier and then northeast through the Jura mountains to Verrieres, the border of France, where our French triptique was endorsed. A little beyond this was Verrieres the frontier town of Switzerland, where our Swiss triptyque was endorsed. It is rather strange to find two towns of exactly the same name within a mile of each other and in different countries.

At the Hospice on the Simplon Pace.—One of the Famous St. Bernard Dogs.

It was high time for dinner so we decided to spend the night in Fleurier a small town just over the border in Switzerland.

We reached the city of Neuchatel about noon and had lunch at the Grand Hotel Bellevue, which is charmingly situated right on the border of Lake Neuchatel. After lunch we made an afternoon run down the west side of the lake to Yverdon, to Lausanne and then over to Lake Geneva, where we spent the night. From Lausanne we went east, following the road which skirts Lake Geneva to Vevey and then south to Martigny where we found ourselves in the beautiful Rhone valley. After reaching Brig—also spelled Briegue, Brieg—there is only one way for an automobile to go, and that is to cross the mountains over what is called the Simplon Pass. Until recent years automobiles were not permitted to travel over this pass and it was necessary to ship the machine through the tunnel to Gondo, the town at the Italian border.

Some few years ago Switzerland was unnecessarily strict with automobilists making it very unpleasant by causing them to be arrested and fined on the slightest provocation. This was heralded about so that few dared to enter the country. This condition has entirely changed. True, in some parts the machines are still excluded and probably will be for some time to come or until the roads are made safer. Many of the mountain roads are very narrow and have little or no protection to prevent scared horses and cattle from going over the sides to certain and horrible deaths.

The Bread Carrier, Northern Italy.

The Simplon Pass is open to automobilists every day from 8 a. m. to 6 p. m. excepting Thursdays. The restrictions are severe and yet if the driver abides by the regulations he will have little to complain of. In order to go over the pass the owner must apply in person for a permit to the Gendarme at Brig, the Swiss border, or the Gendarme at Gondo the Italian border. Upon signing a contract to abide by the regulations and pay to owners of horse vehicles all damages that may be occasioned by the machine, a permit is issued for which a charge of about $1.00 is made. The hour of departure is stamped on the permit and one must consume at least four hours before reaching the end of the pass, where the permit will be collected by the Gendarme. However, this is not a hardship for in clear weather one should spend the whole day on the pass.

A Scene from the Terrace of the Villa Serbelloni.

Near the top of this pass is the famous Hospice, a sort of monastery conducted by a brotherhood of monks. This Hospice was founded by Napoleon as a place of refuge for travelers. Here the traveler is welcome to eat a meal, stay over night or as long as he pleases. Everything is gratuitous, but there is an alms-box near the door where the traveler may deposit whatever he desires when he leaves. I regret to state that the money received is not sufficient to pay for one-tenth of the expenses incurred by the visitors. When one realizes that practically everything consumed in this enormous hotel has to be carted up this mountain by a hard fourteen mile climb, one can hardly conceive how tourists can be so thoughtless.

Here the famous St. Bernard dogs do heroic duty, for travelers lose their way or become exhausted in the severe snow storms that prevail about nine months out of the year and these faithful creatures aided by their keen sense of smell can track and discover people buried in the snow. Food and stimulants attached around the necks of these noble animals are available for these unfortunates.

We were unusually fortunate in having a perfect day to spend on the pass and the picturesque beauty of these mountains has to be seen to be appreciated. I cannot conceive how it can be adequately described by pen or shown by photograph. Late in the afternoon we reached Gondo, the Italian border of the pass. The Gendarme was in the middle of the road ready to stop us and collect our permit. After inspecting it he permitted us to continue. About one half mile beyond we found the Italian customs official where we had our Italian triptyque viseéd and paid our duty on all gasoline in the machine. Italy collects her duty on everything that enters the country.

Much has been written to the effect that it is very unsafe to tour in Italy, that the bandits are numerous and attack the motor car tourists. We passed through Northern Italy several times and not once did we see anything to even excite our suspicions. I have not enjoyed the experience of Southern Italy, but I venture the opinion that it is about the same as Northern Italy. The only act of hostile demonstration that we experienced in the entire trip was the act of an irresponsible man who threw a stone at the machine as we were passing through a town. Fortunately it struck the running board and did no damage. Such a thing might have happened in our own city.

We continued on to Domo d' Ossola and then to Pallanza situated on Lake Maggiore, where we stayed for the night. In the morning we placed the machine aboard one of the small boats crossing the lake. These boats are very narrow and it was all we could do to get the automobile safely on the boat, in fact the car extended over the rail of the boat so that the gates could not be closed, and we crossed the lake with nothing but the brakes to prevent it sliding over into the water. The lakes are very narrow and in less than fifteen minutes we were at Laveno, the town directly across the lake from Pallanza.

From Laveno we continued east to Como, which is situated at the southern extremity of Lake Como. The drive around Lake Como, especially up the east side, is about the finest I have ever taken. We continued around the lake coming about half way back on the west shore to Menaggio, a delightful place with splendid hotels, where we decided to stay a few days.

The following day we took one of the small steamers to Bellaggio. Directly opposite Menaggio the lake divides into two arms, leaving a narrow peninsula surmounted by a high bluff, and on this commanding position is located Bellaggio.

The business part of this town is near the level of the lake, but the villas are high on the bluffs. On the highest point is located the Villa Serbelloni, and from this point, it is claimed, one gets the most magnificent views in all Italy. The Villa Serbelloni enjoys the reputation of being one of the finest villas in Italy.

(To be Continued.)

BOOK REVIEWS.

TEXT-BOOK ON THE PATHOGENIC BACTERIA. For Students of Medicine and Physicians. By Joseph McFarland, M. D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia. Sixth Revised Edition. Octavo of 709 pages, fully illustrated, a number in colors. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $3.50 net.

McFarland's Pathogenic Bacteria has become a standard work of its class, and the present edition fully sustains the reputation of the previous issues. The work is comprehensive and extensive in itself, besides which it is liberally provided with reference foot notes leading to collateral reading on every possible phase of the subject. To thoroughly understand McFarland is to have a liberal education on the subject of pathogenic bacteria.

A MANUAL OF NORMAL HISTOLOGY AND ORGANOGRAPHY. By Charles Hill, Ph.D., M. D., Formerly Assistant Professor of Histology and Embryology, Northwestern University Medical School, Chicago. Second Revised Edition. 12mo of 468 pages, with 312 illustrations. Philadelphia and London: W. B. Saunders Company, 1909. Flexible leather, $2.00 net.

With works on Histology the profession is being liberally supplied and the present volume is a praiseworthy addition to the literature of the subject. Though a work on general histology it is of especial interest to dentist owing to the extended and very satisfactory chapter on the oral cavity and th teeth. The illustrations are excellent and the work as a whole is to be highly commended.

CORRESPONDENCE.

Lincoln, Illinois, February 5, 1910.

Editor Dental Review:

The clinic given by Dr. Head, January 29, demonstrating the use of his "Tartar Solvent," was very interesting and instructive. It is evident that the profession are anxious to learn how to use this wonderful remedy in pyorrhea medication. I have used it for more than a year with good results. I have discussed its use, methods, etc., with many of the profession, and I am impressed with the fact that the value of using a valve bulb for drop medication is not generally appreciated and not generally known. Dr. Dunn's "Bifluorid Syringe" No. 3—Celluloid barrel is the most satisfactory instrument on the market. I have tested all the ordinary bulb syringes and find the valve bulb the best.

Courteously yours,

R. N. Lawrance, D.D.S.

Spokane, Wash., Jan. 24, 1910.

Editor Dental Review:

Chicago, Ill.

Dear Sir: In your editorial "A Question of Ethics," Dental Review, Vol. XXIII, No. II, you state that "a dentist's time is his capital, etc."

This use of the term, "capital," is confusing to me. In the economic sense, I think, it designates wealth used in the production of more wealth, or goods in process of exchange, but to use the word "time" which can only designate the relative beginning and end of a process in production as synonymous therewith makes me wonder.

I realize that there is much confusion in terms used in the discussion of economic questions which creates no end of misunderstanding.

I believe that in the strict economic sense a dentist renders personal services only and does not produce any wealth. He produces neither food, clothing, nor shelter. As I look at it a fee is a gift accepted for personal service rendered.

Time as such is equally essential either in rendering personal service or in the production of wealth.

These are a few thoughts that your editorial jarred loose quite apart from the subject of ethics.

Assuring you of my high esteem of the worth of the **DENTAL REVIEW**, I remain,

Respectfully,

R. A. MUNRO.

NEW YORK LETTER.

My Dear Mr. Editor:

The January meeting of the New York Institute of Dental Technique occurred on January 25. In the afternoon two very interesting clinics were given, viz: Dr. D. D. Smith of Philadelphia, "Diagnosis of Pathological Conditions of the Tissues Supporting the Teeth," and Dr. A. P. Voislawsky of New York, "The Proper Examination of the Nose and Throat, Pointing out What the Dental Practitioner Should Bear in Mind."

In the evening, Dr. D. D. Smith read a paper entitled "Oral Prophylaxis—Its Aims and Benefits." This was a very valuable paper, being direct and to the point, and freely illustrated with short descriptions of cases in his own practice when marvelous changes had occurred. It was quite different from the meeting of the First District (see our last letter) where Pyorrhea Alveolaris was the main subject of the evening. This paper dealt with many other troubles, and showed the great value of thorough oral prophylaxis.

Dr. R. G. Hutchinson, Jr., of New York, who is making a specialty of the treatment of pyorrhea and incidentally, all things pertaining to the hygiene of the mouth, opened the discussion. He was followed by Dr. E. A. Bogue, and others, all agreeing in the main as to the great value of "oral prophylaxis" when properly performed. This subject, in one form or another, seems to be the thing here in the east this winter. One thing especially we have to thank Dr. Smith for in this paper, viz., his differentiation between "prophylactic" and "prophylaxis" showing that the two are not synonomous.

The New York Institute of Stomatology held its February meeting at the Academy of Medicine. President J. Morgan Howe in the chair.

Under "Communications on Theory and Practice" Dr. Louis Nash presented several models of the human jaw, showing congenital defects, and some defects from mutilation. He showed some models presenting a marked space between the lower centrals at the symphisis. There were several from the same family showing the same defect—a congenital one. In one case by spacing all the other teeth, he had materially reduced the space between the centrals.

The paper of the evening was by Dr. W. A. White, of Phelps, New York, entitled 'What to Do and How to Do It," being a paper on hygiene of the mouth, and especially having to do with the work in the public schools, for those whose circumstances preclude their employing a dentist.

Dr. William H. Potter, of Harvard Dental School, opened the discussion. Most of what he said had reference to this work as now carried on in the public schools of Boston.

John Winters Brennan, M. D., president of the board of directors of Bellevue and allied hospitals, Thaddeus P. Hyatt, D. D. S., of Brooklyn, lecturer for the board of education (on dental matters), and Prof. A. L. Swift, of the College of Dental and Oral Surgery, followed.

Dr. Hyatt has been working for years, single-handedly, along these lines, first in the Brooklyn schools and then in the schools of Greater New York, until today he is one of the principal lecturers of the board of education on dental matters, and his work is being recognized.

As before remarked this matter of oral hygiene, especially in reference to the public schools, is quite to the fore this winter.

The meeting of the Odontological Society, its forty-third anniversary, held in January, was addressed by Dr. Paul Gardiner White of Boston, on "The Practical Application of Oral Hygiene to the School Curriculum," and the coming meeting of the same society this month will continue the subject under the direction of one of your western men, and as a matter of education, it will be an important factor at the coming annual banquet of the C. D. A. of N. N. J., at which, among others, Mr. Henry E. Jenkins, principal of the largest public school in the world, will speak on "Dentistry and Education." We think our next letter will be likely to be interesting. By the way, the C. D. A. held an election last month and Dr. Edwin W. Harlan of Jersey City, became president. Our old friend, Dr. Charles A. Meeker, for the "steenth" time being elected treasurer.

As an evidence of how the leaven of oral hygiene is working, a bill has just been introduced in the New York legislature authorizing the establishment in the public schools of the state, what the bill calls "Dental Stations" for the assistance and relief of those unable to pay.

Again have New York dental societies repeated what was instituted several years ago, namely, the honoring of their illustrious living—by tendering a dinner to James Truman, D. D. S., LL. D., of Philadelphia. This took place at the Waldorf-Astoria, in New York, on January 22, and brought together about two hundred and twenty-five of the most eminent men from all over the country, and a great many expressions of encomium from others the world over as brought out by the correspondence, some of which was read by Dr. Kirk that evening.

Dr. Truman looks the physical giant for all of his 84 years, and I may also say, the mental giant, for his mind seems just as clear and his voice has the same ring to it as it had when we first met him a quarter of a century ago.

Dr. W. W. Walker, next to Prof. Truman, was the chief dignitary of the occasion. He was toastmaster and exercised that power as very few others among us can do.

Some of the guests of honor were Dr. Louis Jack, Dr. E. T. Darby, Dr. B. Holly Smith, Dr. R. R. Andrews, Dr. E. C. Kirk, Dr. B. F. Luckey, Dr. J. L. Williams, Dr. T. W. Brophy, Dr. Wm. Jarvie, Dr. Brockaway, Dr. L. H. Guilford, Dr. McManus, Dr. L. D. Sheppard, Dr. R. F. Hofheinz, Dr. J. N. Farrar, J. Morgan Howe, and Dr. J. F. Dowsley.

The dinner itself was a very excellent one, served at round tables all about the large banquet hall, but we had assembled to do honor to a great character and we were impatient to hear from the men who were to speak for us.

After a history of the occasion for these functions by Dr. Walker, he recapitulated who had been honored in the past. Dr. A. L. Northrop was the first, then together with the Second District Society of Brooklyn, Dr. Wm. Jarvie, Dr. Charles Meeker came in for third honors, following which was Dr. Darby, and after Darby came the grand old man. Upon mention of each name there was much applause, but the grand old man awakened the assemblage to the echo. They took up a refrain for the occasion—"Pennsylvania," and would not be stopped until they had sung each verse. The intention was to bring this song in later in the evening.

Dr. Walker soon introduced the first speaker of the evening, Dr. Louis Jack, who was a college chum of Dr. Truman fifty-seven years ago. Dr. Jack gave a sketch of Dr. Truman's career, principally in relation to him as a teacher.

Dr. B. Holly Smith was next introduced to speak for the South from which he brought greetings on this delightful occasion to our guest of honor. He said, that with some regard to what he had to say, he consulted that wonderful Italian woman, Madame Palladino, and she told him that by prayer and fasting he could lay hold of the spirits from the other world and that he could bring here giants, pilgrims of eternity, who would say a few words tonight, and then he proceeded to interview Chapin A. Harris, Horace Hayden, Robert Arthur, Robert B. Winder and J. Foster Flagg.

As a closing couplet he expressed a wish for Dr. Truman. "I wish that all your skies be blue, your friends be true." I will wish more, "that God will send just what his love perceives you need; then be it thorns or flowers, dear friend, you will be thereby blessed indeed."

Dr. E. T. Darby was next introduced. He said he had known Dr. Truman for forty-five years. He dwelt particularly upon Dr. Truman's character as one who can and has always fought for principle, and cited his fight for the first woman dentist in the University of Pennsylvania, and that Dr. Truman had won out. Dr. Darby said if Dr. Truman sees a man fighting for his rights he will fight with him, and it is a reputation he has had ever since the slaves made their way over the boundary. He told of how Dr. Truman provided for "Black Annie" of the college when she became old; how he frequently visited her, and followed her body to the grave when she died.

Dr. R. R. Andrews was the next to be called upon to honor the guest..

He told us that the men of the east honored and respected us for banqueting the man they love and esteem; whose grand work for the real interests of our profession is the cause of great satisfaction to us. He referred to Dr. Truman's ability as a literateur, as an independent journalist, and of the royal qualities he has met with in the man. "No tribute to him can be too generous, too universal."

Dr. J. Leon Williams of London, England, was next introduced, and to the writer, made the speech of the evening. He seemed to get closer to the real psychology of the occasion than did the others.

He said in part:

"If one were in search for an inspiration to high standards of excellence in accomplishments, to noble ideals of life, and that realization of fine character which comes from never losing sight of those noble ideals, that inspiration may be found in the accomplishments, the ideals and the character of the man we have met to do homage to here this evening.

"We can try to emulate him by keeping always before us his high standard of the professional man, and that is the standard of a gentleman in the truest sense in which that term can be used, and there is nothing better than that to be accomplished in life. As I look into the face of our friend I think that I read that he has found the 'better thing.' That 'better thing,' as I understand it, is made up of two elements—the reaction of work upon life as governed by our attitude toward our occupation, and our relationship with our fellows.

"This is a banquet to our guest, but it is also a banquet to the spirit of friendship as personified in our guest, and the presence and standing of the men gathered here tonight is gratifying and convincing proof of the power of that fine friendship which is the social blossoming of fine character." After saying much more, Dr. Williams closed with this invocation: "We have high authority that things are thought into existence. If that be true, then wishing must be one of the most creative forms of thought, and in this belief I suggest that we all join in the wish for our guest that the years may never, like an enemy, smite him, but continue ever to lie, like the hand of a friend lightly on his shoulder."

Dr. Brophy came all the way from Chicago to pay his respects to Prof. Truman. He said that thirty-eight years ago, just after the Chicago fire, he went to Philadelphia, where he was drawn chiefly by the name of the distinguished guest. "Mr. Chairman, it gives me great pleasure, as a graduate under his teaching, to say that we rejoice with our friends in New York to whom we are grateful for this magnificent expression of good fellowship, and we raise our voices in telling the world that we are tonight honoring the voluminous writer, the faithful and efficient teacher, the world's senior professor, the brood minded and beloved dean of our dental profession, the fearless, born leader, the honest man, the students' friend, Professor James Truman, of Philadelphia. We recognize the strength of his personality, his devotion to duty, the tremendous influence of his eloquence."

Dr. Walker arose and said:

"Now, gentlemen, I am going to call on our beloved guest, Dr. James Truman." Then there was tremendous applause and singing, and "The Truman Yell" was given:

THE TRUMAN YELL.
Rah—Rah—Rah! Sis, boom, Rah!
Truman, Truman, Truman,
Is he in it? Well I guess—
Jimmie Truman, Yes, Yes, Yes!

It was many minutes before the doctor was given opportunity to speak. Finally he said:

"As I sat here and heard all the pleasant and gracious things said about me, I really did not know myself. I thank all those here and those broadcast over the world who have also tendered me their grateful appreciation. I am not here tonight to speak of myself. I want to talk to you upon our profession. It is true that I have been interested in dentistry nearly three-quarters of a century. As far back as 1837 I was first introduced to dentistry as a boy of eleven in the office of my father.

"Our profession, as I look at it, seems to be divided into periods. The first of the last century was given over to the leechers and bleeders, for at about 1814 out of 31 dentists in Philadelphia, 16 of them combined leeching and bleeding with dentistry. A man by the name of Hudson was one of those who did not, and who was probably one of the ablest ever found in it. I heard Elisha Townsend say 50 years ago that he had seen fillings of Hudson's which had been in 50 years.

"Gardette was another who came over from France. Then there was a German by the name of Hecker. He wrote the first book of any value in the United States. A Frenchman, a German, and an Irishman—three typical for the development of American dentistry.

"The next period was a very imperfect period, and I will not dwell upon it.

"Then came the mechanical period, which I do know something about. Some have thought it was a poor period, but in my opinion it was the most satisfactory up to the present time.

"The skill of those men who ground porcelain blocks and fastened them to gold, furnished some of the most beautiful specimens of dental art that have ever been produced.

"The fourth period came with cohesive gold, with the efforts of Bonwill, Atkinson, and Webb, to make gold fillings beyond all others.

"There came another period, ushered in by a voice which resounded well over the United States. It was the voice of Flagg. (Applause.)

"At first I had no sympathy with him. We thought dentistry was degenerating.

"Then we come to the era of porcelain inlays, and at the present time we have the gold inlays. They are repeating now what they did under the third period. They are using jewelry again. Artistic culture does not warrant us filling mouths with gold that glitters.

"But I do want to influence all of the best men of the profession not to forget what the profession has done in the past.

"I am very much like Cicero, who, when asked if he would like to go back to infancy, No. I would dispute it if God should ask me at 84 to go back to the cradle. So say I, I would not care to go over the whole ground, but like Ruth, I would pick up the grains and carry them forward.

"Dentistry today is a science. It is no longer a badge of partial culture. I look forward toward the middle of this century, when every dentist will have the degree of M. D. The law will demand it.

"Emerson once said: 'Hitch your wagon to the stars.' Our fathers are our immortal stars, ever shining with increasing brilliancy in the firmament of professional life. Let us follow them and carry on the good work."

Dr. Ottolengui was called upon at this juncture to report on the committee on research.

He said he did not know just what research he was supposed to conduct, but if he was to look into the matter at all it would be to ascertain the reasons and causes of why we gave such a banquet as this.

The deeper and greater purpose of these banquets is to point out to the young men that we of the dental profession will, at some time, recognize merit with our approval. It is also a notice to the old men that if they live entirely for themselves, be they ever so old, they will not receive recognition here.

The deeds that Dr. Truman has done are immortal.

We give those we honor our love, our honor and all that goes with it. Still we feel that we would like to do more to take home as a remembrance of the occasion, but it has been a difficult task for the committee this year to decide just what to give Dr. Truman. We have cast about to know what to do, and as we learned that you, Dr. Truman. had laid down practical work, it seemed to us you might want to enjoy life a bit by seeing the world, so when you return home you will find an automobile in front of your door.

Dr. Truman's response to the testimonial tendered him was hearty thanks, not only to Dr. Ottolengui for his remarks, but for the prospective automobile "which I cannot run. If Dr. Ottolengui will go to Philadelphia and drive it, it may be a success. But with me, I am sure I would run it into the first hole, and probably end my pleasant career."

Dr. Kirk was the last speaker of the evening. He said he was of the opinion that his speech had been spoken (because as correspondent, he had been called upon to report.) "But I would be neglecting my duty if I did not say something that perhaps may not have been said of the character and influence of our honored guest."

And then Dr. Kirk went on to cite instances during his years of association with Dr. Truman of the paternal attitude he showed to him and to students of the U. of P. "It is that paternal attitude which justifies that thing with every student who has graduated from the department of dentistry, when they speak of "Pop" Truman. I don't think he has ever understood it. It is one of the greatest things in that man's life—that a son feels toward a father.

"Some years ago, John Bright in the House of Commons in a speech he made remarked with reference to the U. S. of America: 'That the time would come when no nation of the earth would dare to go to war without first asking what the U. S. of A— thought about it.' And because of the relationship which our honored guest bears to the U. of P.—Department of Dentistry—that department does not dare to take any decisive step in the question of its policy without first questioning what James Truman thinks about it.

"He has been to me an influence in my life, perhaps greater than anything else, in my professional career, and I am glad to make this public acknowledgement of the debt of gratitude I owe him for what I have been able to accomplish in the uplift of the dental profession."

At the meeting of the First District Dental Society one of the most interesting papers of the year was read by Dr. E. C. Kirk of Philadelphia on the subject of "A Consideration of the Question of Susceptibility and Immunity to Dental Caries." It called out an attendance of over four hundred, which attendance has not been attained before this season.

Dr. Kirk's paper was a masterly exposition of the salivary problem treated from all the aspects of the subject such as medical and dental science is familiar with, and with that composite knowledge is the weight of the doctor's investigations and deductions.

His purpose he said was to attack the problem of dental caries from a different standpoint than had heretofore been the custom, that it might stimulate research away from the beaten tracks. In speaking of the history of the disease he said there had been two theories for caries and it was difficult to say which was older; one school contended that it was chemical in origin, taking place without and working in, the other that the cause was in the tooth and worked from within outward.

Of course consideration of the salvia was the basic theme of the entire paper. Dr. Kirk said that dental caries was modified by the degree of susceptibility and immunity of the individual. His belief is that saliva has some antiseptic properties but that it contains antiseptic agents is untenable.

In speaking of the components of saliva he quoted Dr. Miller as saying that sulpho-cyanide of potassium did not interfere with bacterial growths unless it was present in five times greater quantity than in any normal mouth. Miller in 1903 said that it (saliva) does not possess any bactericidal effect at all.

Dr. Kirk said that filth was no factor in causing dental caries. "We constantly see filthy mouths where teeth have not decayed." Caries is selective in its point of attack, progressing at the least vulnerable point. His contention is still, as we remember he emphasized some years ago, that lactic acid is the initial and the exciting cause of the disease. But lactic acid exists in mouths of immunes, so explanation must be sought elsewhere. Saliva is by no means stable in composition, varying at different times of the day and greatly during different years of the same individual.

Food habit was entered into to some extent by Dr. Kirk in which he spoke of the different conditions at different periods. Carbohydrates formed much of the food of children and youths with which an abundance of sugar was used. Then later on toward maturity the habit changed to more meat eating and then caries subsides. We rarely find caries in mouths of those using much proteid diet.

Some extracts from his paper are: "Most active caries are found in alkaline and mucoid saliva." "Lactic fermentation proceeds best in a neutral or slightly alkaline medium." "There are areas of the mouth which record acid reaction; they are over some of the mucous follicles." "The relation of mucin to caries is a most important one."

He referred to Dr. Kells who has persistently for years prescribed lime water as a mouth wash for his patients who suffer most from caries. Dr. Kirk remarked that lime water and 25 per cent hydrogen-dioxide was an excellent thing for removing the gellatinous placques.

Dr. Kirk's paper I am sure will be regarded as a most valuable contribution to the literature on the subject which it embraces.

Dr. J. Leon Williams of London was to sail for England several weeks ago but he remained over to hear Dr. Kirk's paper and to open the discussion. He said that it was especially true of the paper of the evening that it marked a distinct mile stone in our literary progress.

Dr. Kirk's paper has almost completed the chain of evidence in their sequential order.

Dr. Williams in speaking of some of the unpublished history, referred to a conversation he had at one of the dental dinners given in New York some years ago in which he made the assertion that the problem of dental caries would be solved only by a study of the fluids of the mouth. It has remained for Dr. Kirk to uncover the hiding place of these destroyers of tooth structure.

Dr. Williams regards the disease as not one of disturbed function, but of destruction. If there are no bacterial placques there is no caries, so prophylaxis plays a very important part.

He expressed himself as deeply interested in the problem of nutrition as a factor in dental caries as brought out by Dr. Kirk.

Our hopes of the future lie in the discovery of some thing that will destroy the bacterial placque and he thinks it will be by some medical means. We are well on the way to supplying the most important condition upon which medicine exists.

Dr. J. Bethune Stein, professor in the New York College of Dentistry, contributed to the discussion of the paper by asserting that caries was a pathological condition of the mouth where the aerobic flourish on the waste of the anaerobic. Where we have a derangement of the alimentary canal the disturbance is greatest.

Dr. Weld asked the privilege of showing three models, each representing mouths wherein all the thirty-two teeth were intact. No caries in either case but extensive erosion was evident—particularly in one.

Dr. Geo. A. Mills in well chosen and a somewhat facetious manner added to the discussion some mature thoughts. He was sorry that he was not a microscopist, but he had been a good listener for 59 years.

It was so uncommon to see two men agree on any big subject as have Dr. Kirk and Dr. Williams tonight.

The strongest impression which he gathered is the question of nutrition.. We have been giving so much nutrition that we have been destroying the forces of nautre.

We have been recognizing only secondary causes. Dr. Talbot has been laying the foundation—the soil—for the constructive forces.

Dr. S. C. G. Watkins of New Jersey turned the tide of thought by making one point: "One thing they have all overlooked this evening and that is the use of the teeth for mastication. Fletcherizing will do more to keep the teeth clean than anything else."

Dr. W. W. Walker—who is chairman of the Executive committee—felt that some apology should be made for lack of scientific investigators to contribute to the discussion. He assured the society that another year we would have a section on histology and pathology where we would train our own men as investigators.

He also put through a vote of thanks to our fellow member for his appearance before the society.

Dr. Kirk in closing the discussion said that we were all getting little nearer the truth. The practical men are bringing their important testimony so that we will be able to prevent and cure dental caries.

As to the question of treating this disorder by alkaline or acid medium as referred to by Dr. Williams—he saw no reason why food acids should not act as an inhibiting influence. (This answer by Dr. Kirk was following up to the remark of Dr. Williams who during the discussion referred to the remarkably good teeth of the lemon pickers of Southern Italy, which he thought was due to their habit of tasting the fruit.)

Dr. Kirk said upon the nature of the survival of the bacteria depended the condition of the mouth and not upon either the structure, function, composition or form of the teeth. Dr. Mills has hit it on the head—it is nutritional. Dr. Kirk said that he had learned to understand the great combustion problem in a much better way by studying the gasoline motor. A man who runs his own car gets a chance to study the transformation of fuel to its end products.

As to cleaning teeth—why should we have to clean them?

Fletcherism is a mode of cleaning the teeth and a mode of nutrition, but from his observations of Mr. Fletcher's mouth, which he had a chance to see, the nutrition was out of all balance and the system needs modifying.

Yours truly,

THE BOROUGHS.

PRACTICAL HINTS.

Bismuth :—There have been some deaths from the use of bismuth paste. I do not know that this would be poisonous in its nature. It is necessary in the use of bismuth that it be absolutely pure, because arsenic is one of the ingredients, and all know what arsenic does when it comes in contact with the gums, and if you inject arsenic into a cavity you will get into trouble. Zinc is one of the best things we have, as it is disinfectant and caustic, and used with caution I think it has a place—*Dr. De Ford, Iowa.*

To Remove Blood from Canals After Pulp Devitalization:—Wind cotton loosely on a smooth broach and place carefully in root canal, being sure that it reaches to the apex. Withdraw the broach, leaving cotton extending from apex of root to the pulp chamber and protruding into the latter. Then place a small pellet of loosely rolled cotton into the pulp chamber, leaving it there a few minutes. It will be seen that the cotton in the root canals acts as a wick, drawing the blood towards the pulp chamber, where it is readily absorbed by the cotton.—*D. D. Drake, Clarinda, Iowa.*

Learn to think:—If we, as dentists, ever become really professional men, we must learn to think. We must learn to think while we have a patient in the chair under examination. We must read more and think while we read; learn to pick out in our reading the things that we should remember. We should carry those thoughts with us to the chair and bring them before us as we make examinations. Whenever we examine a case we should have in mind every different condition that might be present, and the symptoms that would distinguish each from the other.—*Arthur D. Black, Chicago.*

Duty to Patients:—We have on our statute books a pure food law and a pure drug act, but it does not matter how pure the food is if we bring it to the vestibule of the body, and there mix it with all the filth of which the mouth is capable and swallow it. I would prefer to have my food not so pure and have my mouth clean, than I would to have my food absolutely pure and have it mixed with the oral filth and bacteria that are lurking in some months. The dentist has a duty to perform. It is for us to wake up and to become active and educate the public as to the conditions in their mouths.—*J. P. Buckley, Chicago.*

Pressure and Expansion in Casting:—The greater number of us have been casting into a hot mold, and it is my experience that probably nine out of ten of these castings are a little too large for the cavity, and they have got to be forced to get them in. I thought that was because we cast under too much pressure, and it has been my idea to cast with as low a pressure as possible, using only three or four pounds altogether, thinking that the high pressure had expanded the mold; but if we cast into a cold mold and get a smaller casting, probably the trouble is in the expansion of the mold on account of heat.—*Chas. E. Woodbury, Council Bluffs, Iowa.*

Accumulation on Teeth:—Ninety-five per cent of the human family have accumulation of some kind constantly gathering on their teeth, yet we rarely see progressive caries and pyorrhea advancing in the same mouth at the same time. During the age from two to twenty-five, the lime salts are being used to build up bone tissue, and the teeth are more subject to caries, but later the lime salts are held in the saliva in such quantity and character as to mix with debris which accumulates on the teeth sufficiently to neutralize acid formed, so that the tooth structure itself is not injured, but the deposit is more aggressive, hence more irritating to the soft tissue, and pyorrhea is the result.—*F. H. Skinner, Chicago.*

Remove Mechanical Irritation from Teeth:—All the medicament you may use is of no avail unless the mechanical irritation is removed. I have said that I claimed the superiority of stearate of zinc over that of subnitrate of bismuth for this reason; that subnitrate of bismuth itself is a very inert drug, practically as inert as chalk. There is a chemical action when there is acid present in the mouth, when chalk is taken into the mouth. It neutralizes the acid in the mouth. Subnitrate of bismuth is acted upon faintly by hydrochloric acid in the mouth or whatever acid is present. With stearate of zinc there is a lively chemical action set up by the hydrogen sulphide in the mouth or whatever acid is generated there in the old broken down tissues, and it is my theory that you have a continued formation of chlorid of zinc acting as an astringent on the gums.—*J. B. Pherrin, Des Moines, Iowa.*

Have the Surface of Cast Inlays Rough:—Our investing material absolutely cannot be made fine enough to give a polished surface or get a cast that will not have some little nodules or roughness of surface that will take some slight space. It may be said, as many of us have thought, the best cast we make is the smoothest, but is that so? I think the rough cast is the perfect shaped one. Take a smooth cast (one that is cast with the gold not too hot), and you find that if you have feather edges overlapping the margins these will be somewhat rounded, that the little roughness of the investment is not imprinted in the gold. If the gold is melted to a white heat, to a full liquid condition, and cast with a good pressure, the cast will be perfect, with good sharp feather edges; feather margins overlapping and a rough surface. I believe that the time will come when we can control the size of the cast that we want by the temperature of our investment.—*C. R. Baker, Davenport, Iowa.*

Eating Between Meals:—I believe one of the greatest deleterious influences we have to contend with in the treatment of children and adults is the pernicious habit of eating between meals, this everlasting habit of munching and eating things after they leave the table and after they have cleansed their teeth. It means there are starchy products in the mouth all the time. So the thing I want to impress is not simply the problem altogether of how to combat certain micro-organisms which inhabit the mouth, but it is largely a food problem. The old practitioners of dentistry used to tell their patients they lost their teeth because they ate too much sweets. Then came a line of dentists who told their patients that they need not be afraid of eating too much sugar so far as it having any effect on the teeth was concerned; but investigations have shown that where patients eat articles of food mixed with a good deal of sugar more or less debris collects upon the teeth and becomes a suitable pabulum upon which the organisms may live.—*J. V. Conzett, Dubuque, Iowa.*

MEMORANDA.

SOUTHERN MINNESOTA DENTAL SOCIETY.

The twenty-fifth annual meeting of the Southern Minnesota Dental Society will be held at the Saulpaugh Hotel, Mankato, Minn., April 11, 12 and 13, 1910. C. A. HINTZ, Secretary.

ILLINOIS STATE DENTAL SOCIETY.

The 46th annual meeting of the Illinois State Dental Society will be held in Springfield, May 17, 18, 19, 20, 1910. In addition to an especially good list of essays and clinics, an unusually attractive supply exhibit is being planned. J. F. F. WALTZ, Secretary, Decatur, Ill.

AMERICAN DENTAL SOCIETY OF EUROPE.

The thirty-seventh annual meeting of the American Dental Society of Europe will be held in Paris, France, on March 25, 26 and 28, 1910, at the Hotel Continental. A most cordial invitation is extended to members of the profession to be present.

T. G. PATTERSON, Hon. Secretary,
2 Quai des Eaux Vives, Geneva, Switzerland.

ALUMNI ASSOCIATION COLLEGE OF DENTISTRY, UNIVERSITY OF ILLINOIS.

The Alumni Association of the College of Dentistry, University of Illinois, will hold their third annual clinic and meeting in the college building, corner Harrison and Honore Streets, on Wednesday, June the 1st. This will be strictly an alumni clinic but all ethical members of the profession are extended an invitation to be present. Frank J. Ryan, secretary.

KENTUCKY STATE DENTAL ASSOCIATION.

The forty-first annual meeting of the Kentucky State Dental Association will be held in Louisville, Ky., May 26-27-28, 1910.

An unusually interesting and profitable program is being arranged for the meeting this year, and a cordial invitation is extended to all ethical members of the profession. W. M. RANDALL, Secretary, corner Brook and Broadway, Louisville, Ky.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Michigan State Board of Dental Examiners for the examination of applicants for registration will be held at Ann Arbor, beginning Monday, June 20th, and continuing through the 25th. Applications must be in the hands of the secretary at least 14 days before the examination, and should be addressed to A. W. Haidle, Secretary-Treasurer, Negaunee, Mich.

ODONTOLOGICAL SOCIETY OF NEW ORLEANS.

At the annual meeting of the Odontological Society of New Orleans, the following named officers were elected for the ensuing year: President, Dr. J. C. Crimen; vice-president, Dr. E. L. Fortier; secretary-treasurer, Dr. St. Clair Duke; executive committee, Drs. L. D. Archinard, H. P. Magruder and Paul DeVerges.

Suitable resolutions were passed on the death of John J. Archinard, A. M., M. D., honorary member of this society.

ST. CLAIR DUKE, D.D.S., Secretary.

V. INTERNATIONAL DENTAL CONGRESS.

All colleagues who have taken part in the V. International Dental Congress, and who have not received the supplement of the Congress Paper, which had been sent to the members some time ago, are requested to send their names, and exact address, as well as the number of their Congress-card to the secretary of the V. International Dental Congress, Dr. med. Konrad Cohn, Berlin W. 35, Potsdamerstr., 46. This only will enable us to publish an exact list of all the visitors of the Congress, and to send to the members the prints, which have been published up to the present. A great number of letters has been returned, the addresses having been indicated incompletely.

NEW JERSEY STATE BOARD OF DENTAL EXAMINERS.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual meeting for examining candidates for license in the Assembly Chamber of the State House at Trenton, N. J., July 5, 6, 7, 1910.

Practical work July 5th, beginning at 8 a. m., theoretical written examination, 6th, 7th.

All applications must be in the hands of the secretary ten days prior to the examination. Applicants must send preliminary credentials and photograph with application or it will not be accepted.

Sessions begin promptly at 8 a. m. each day. CHARLES A. MEEKER, D.D.S., 29 Fulton St., Newark, N. J.

RECENT PATENTS RELATING TO DENTISTRY.

938,640—Dental instrument, E. L. Chott, Chicago, Ill.

939,189—Package roll for metallic leaf, W. H. Coe, Providence, R. I.

938,525—Electric mouth mirror, B. E. Turney, Bridgeport, Conn.

939,655—Head-rest, J. A. and J. P. Barker, Philadelphia, Pa.

939,476—Dental inlay holder, B. F. Copp, Las Cruces, N. Mex.

939,834—Dental tooth clamp, G. A. Harper, Shreveport, La.

939,261—Machine for contouring crown-matrices, F. O. Jaques, Jr., Cranston, R. I.

939,365—Dental instrument sharpener, C. Wiethoff, Minneapolis, Minn.

940,599—Making artificial teeth, J. Humphrey, Boston, Mass.

940,351—Dental instrument, O. Neugebauer, Berlin, Germany.

940,058—Dental instrument, S. Quigley, Fitchburg, Mass.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

OBITUARY.

DR. FRANK S. BUCKLEY.

Dr. Frank S. Buckley died at his residence in Oak Park, January 17, 1910, of pneumonia.

Dr. Buckley was born October 1, 1857, at Ripon, Wis. As a young man he spent two years in the Naval Academy at Annapolis. He was a graduate of Oberlin College and the Dental Department of the University of Michigan. He spent several years in practice abroad after graduation, being three years in Berlin associated with the late Dr. W. D. Miller. In 1894 he came to Chicago where he practiced until 1900, when he went to Turkey and took up his work in Constantinople. Again returning to Chicago in 1906, where he practiced until his death.

Dr. Buckley was a member of the Chicago Odontographic and Illinois State Dental Societies and was for years actively interested in Homes for Seamen and other forms of Christian work. He leaves a wife and one son.

J. AUSTIN DUNN.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, APRIL, 1910. No. 4

ARSENICAL DEVITALIZATION
VERSUS
PRESSURE ANESTHESIA IN PULP EXTIRPATION.*

BY ELLIOTT R. CARPENTER, D. D. S., CHICAGO, ILL.

Mr. President and Members of the Chicago-Odontographic Society: In presenting for your consideration this evening the relative value of arsenical devitalization, versus pressure anesthesia in pulp extirpation, I feel that we have arrived at the forks of the road, whose sign-board points left, antiquity and right, modernism.

Arsenic is a metal of blackish or steel gray color, found native as an oxid, and when digested in dilute nitric acid, forms arsenious acid, the drug as we use it in dentistry. In doses of 1-60 to 1-12 grain its action is one of a tonic, but when taken in large doses it is a virulent, irritant poison, the only known antidote being the hydrated sesquioxid or peroxid of iron, and should be preceded by the use of an emetic, or the stomach pump.

According to Harris, Dr. Spooner, of Montreal, was the first dentist to use arsenious acid for the destruction of the dental pulp, but the discovery was first made known to the dental profession by his brother, Dr. S. Spooner of New York City, through the medium of a popular treatise on the teeth, published in 1836. The early writers upon arsenical pulp devitalization gave the application as 1-40 to 1-50 grain, with equal parts of sulphate of morphia, reporting devitalization in from three to seven hours, frequently without pain, but in most cases with more or less pain.

Arsenious paste was first made by taking one-third arsenious acid and two-thirds sulphate of morphia, creosote q. s., to make paste.

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*Read before the Chicago-Odontographic Society, December, 1909.

It was very popular, but it has since been proven that arsenious acid is not soluble in creosote, and that in all probability sulphate of morphia does not counteract the highly irritating effect of arsenious acid upon the dental pulp; consequently this combination is a thing of the past.

The successful application of arsenious acid to an exposed dental pulp calls for a series of minute details, none of which the operator desiring the best results can afford to neglect.

In no case should arsenious acid ever be applied to an exposed dental pulp without first applying the rubber dam. Should the walls of the tooth requiring arsenical treatment be so broken down as to preclude the application of the rubber dam, without absolute dryness, cover the exposed pulp with a hollow metal cap, with a minute dressing of cotton and eugenol, intervening between exposure and cap, restoring broken walls with cement. If pain has been of recent origin, say two or three days, or is present at time of operation, I invariably allow tooth to rest for a week before making arsenical application, that pulp congestion may at least partially subside, which it usually does when the above details are carefully carried out, the resume of which reads,—a soothing dressing, absence of pressure, hermetic sealing, eliminating irritation from saliva and impacted decomposing foodstuffs. If after a week's time the pulp has remained quiescent, again apply rubber dam, drilling out cement liberally with large round bur in the direction of hollow metal cap, until cap and dressing can be removed. Syringe out cavity and exposure with tepid water, dry with loose cotton pledget and pulp is now ready for application of arsenious acid. Upon a clean glass slab or watch crystal (I prefer the latter) place one-half minim eugenol, add to it 1-100 grain arsenious acid, roll between thumb and finger a small cotton rope, which, when released, measures approximately 1-16 of an inch in diameter, cutting from center of rope, because of the looseness of the fiber a piece ⅛ of an inch long, soak in engenol arsenic mixture, after which with small pointed instrument place in contact of exposure, and cover with hollow metal cap, seal with cement and allow to remain from four to seven days, according to the amount of previous congestion that has been present; and if the palliative procedure has been resorted to prior to applying your arsenious acid, the pulp will in the majority of cases be found devitalized and ready for extirpation.

Arsenious acid, as previously stated, is a virulent irritant poison, and by virtue of its irritating property sets up within the blood-vessels of the pulp a tremendous congestion, which finally produces strangulation of the vessels inside of, or at the apical foramen, and a complete paralysis of the nerve fibers.

In 1902 I read before the Odontological Society of Chicago a paper on cocain, and its many dental uses, in which I stated that "arsenic for pulp devitalization should be relegated to the top shelf of oblivion," and in the seven intervening years I have had no regret of the utterance and neither have I but once returned to its use, and that in the case of a patient, who at one time had suffered collapse from a throat spray of cocain, and requested I use not even the weakest solution, and demanding arsenic instead. In order to play fair and be broad I have given you my own personal procedure in arsenical devitalization, as I practiced it several years ago; but I cannot, in this day and age of asepsis countenance the use of a drug that, after it has accomplished its work, you have to wait until a sloughing of the pulp ends has taken place at the apical foramen, because until sloughing has taken place, apical inflammation is too great to allow of extirpation. Thus you deliberately produce a septic condition which you afterwards have to combat. Pathologically it is against all modern ideas of surgical asepsis.

Pressure anesthesia in pulp extirpation has been successfully practiced for about nine years, but in its infancy was little understood, and its technic was crude beyond measure, its results uncertain and often disappointing.

Personally I have been an advocate and ardent devotee to the use of this most exact and humane method since the advent of the extract of suprarenal capsule in 1900, and it was my pleasure to read a short paper before this society in 1901 on the dental possibilities of this drug.

Prior to 1900 I had been trying intermittently different aqueous solutions of cocain hydrochlorate in pressure anesthesia with the most disappointing and uncertain results, and was about to forever abandon the procedure, when my family physician, Dr. W. Scott Harpole, called my attention to the new drug, extract of suprarenal capsule, a powerful styptic of which medical authorities all over the country were writing voluminously, especially the rhinologists, who were then using it as a spray in hay fever cases.

The active principle of suprarenal capsule was isolated by Prof. Abel of Johns Hopkins University Hospital in 1897, in the form of a light grey or brownish powder, which shortly after was placed upon the market by Armour and Company; but in this, the original form, it was not a finished scientific preparation, as it was difficult to determine accurately the strength of the solution when made up, and was most unstable, as disintegration by putrefaction took place within fifteen or twenty minutes after the powder was brought in contact with moisture, eliminating a most foul odor as of decayed meat.

After considerable experimentation Park Davis and Company, of Detroit, hit upon a saline solution, which does not disintegrate, and is the adrenalin chlorid 1 to 1000 that you are all familiar with, so from now on we will deal with the drug as adrenalin chlorid a vasomotor constrictor.

This now leads us up to the second drug in the combination for pressure anesthesia cocain.

Cocain is obtained as an alkaloid from the leaves of the erythroxylin coca, and as an alkaloid is insoluble in water, but for medical purposes is used almost exclusively in the form of a hydrochlorate, the salt of which occurs as a crystaline powder, freely soluble in water or alcohol.

Cocain is a powerful anesthetic, and in addition is also a vasomotor constrictor. Its toxic properties are very marked, especially when injected subcutaneously in strong solutions.

There seems to be a strong prejudice on the part of many dental operators against the use of this most useful drug, and I believe this is largely due to the clinical reports of the numerous accidents and fatalities which attended its use soon after its introduction, when its properties were not fully understood, and it was used in large doses and concentrated solutions.

Cases of serious trouble following the use of dilute solutions of cocain are so very rare that they may be justly attributed to idiosyncrasy of the patient. By this I mean the subcutaneous injection. As we use it in pressure anesthesia, the proper solution and exact technic I do not see any possibility of toxic effect, and should the patient show any symptoms of fainting, profuse perspiration or mental excitement, the minor toxic symptoms of cocain, it will be due not to the drug but to the mental and nervous condition of the patient, or the overambitiousness of the operator to force all of the cocain solution through the pulp exposure the first thrust of the plunger instrument.

I once heard it said of a man that he never told a lie, but that he also did not always tell all of the truth. I have acted upon that suggestion and tell my patients when a pulp is to be anesthetized that this new drug, adren alin chlorid beats arsenic and cocain all hollow, dilating upon the harmlessness of it, how it drives all the blood out of the tissue and makes it almost a painless operation, thereby all mental and nervous symptoms ordinarily vanish, as if by magic.

So confident am I that cocain properly used, dentally, is impossible of the major toxic symptoms, that I shall not digress from the title of my paper to give them, but during my research work discovered two facts that may be of interest to you. First there is no absolute antidote for cocain poisoning, and second that nitrate of amyl, which was once quoted as being most efficacious, has since been proven more harmful than beneficial.

Cocain solutions are most unstable, and your work in pressure anesthesia will be much more satisfactory if a fresh solution is made for each operation as presented, especially avoiding the mixing of the solution with any instrument or point that has been boiled in soda solution to sterilize, as the introduction of an alkali would tend to render the cocain inert.

Cocain acts upon the nerve ends or fine nerve twigs, and if injected into a main nerve trunk will arrest both afferent and efferent impulses.

According to H. Braun, a German investigator, the addition of adrenalin chlorid to cocain not only prolongs anesthesia, but also diminishes its toxic effect, probably due to the vaso-motor constricting action of the adrenalin chlorid.

It may be well to remember that if it is imperative to operate with pressure anesthesia in the presence of considerable congestion that a slightly stronger solution placed in contact with the exposure and allowed to remain ten minutes before applying pressure will give better results.

Upon the clinical data of the best medical investigators of the world it has been proven beyond all doubt that adrenalin chlorid added to cocain prolongs cocain anesthesia, and reduces in a large measure its toxic effect, thereby giving us the best combination of drugs for pressure anesthesia.

In diagnosing conditions for pressure anesthesia I would consider them from the same viewpoint as arsenic, avoiding the operation in the presence of great congestion, and resorting to the palliative measures as suggested by the section on arsenic in this paper.

My method of procedure is as follows: Restore broken down walls with cement, if cavity area is so great as to preclude the holding of the pressure anesthesia solution almost wholly within the drill hole or exposure of pulp approach. There is no doubt in my mind that many of the failures are due to the fact that more of the solution is often pumped out and around the rubber plungers, than is pumped into the pulp itself. In other words I find that a long, narrow approach to the pulp containing a very minute quantity of the anesthesia solution, all of which can be pumped directly into the pump, will act much more quickly and accurately.

I use the cocain prepared by Schieffelin and Company of New York, called neurocain, this being a stock name that applies only to the shape of the cocain, which comes in little billetts or cylinders. These billetts are simply pure cocain hydrochlorate. They measure about one-twentieth of an inch in thickness, an eighth of an inch long, weighing 1/12 grain each. This makes a very desirable preparation because you can tell to a nicety the amount of cocain used; if, for instance, the billett is cut in two you have a 24th of the grain; if in three parts, a 36th of a grain.

The proper or long approach to the pulp when possible is made by using two or three sizes of new round burs. I begin with number three, shift to one, and penetrating into pulp chamber with ½. Reducing size of burs on approach reduces friction, thereby reduces pain, resulting in a sectional funnel shaped approach that more readily the soft rubber fills and prevents regurgitation and all of the anesthesia solution will be forced into the pulp.

The proper or long approach being made to the pulp I now take a half billett of neurocain, place on a clean watch crystal, adding to it one drop of adrenalin chlorid. Mix same with a glass dropper point. I now place in this solution a small cotton cylinder, cut from rope as suggested in section on arsenic, carrying to exposure and with unvulcanized rubber gently but firmly pump with blunt instrument, until patient advises that all sensation has ceased. You are now ready to open generously into the pulp chamber, extirpating pulp according to your own methods. The hemorrhage following pulp extirpation is most desirable as it washes out the apical foramen and restores a normal tone to the vessels at that point. If hemorrhage does not follow I usually encourage it by wiping canal ends with dressing of dry cotton, and by the same token it can be checked by dressings wet in distilled water. All blood should be removed from canals and pulp chamber before dressing with 95 per cent phenol or other coagulants as an aid to preserving tooth color. I prefer to dress twice a couple of days apart with 95 per cent phenol before filling root canals as I believe by so doing I avoid apical soreness or lame teeth so many operators complain of.

A CONSIDERATION OF THE ADVISABILITY FOR EXTRACTING TEETH IN ORTHOPEDIC DENTISTRY.*

BY T. L. GRISAMORE, PH. G. D. D. S., CHICAGO.

During the past five years no operation in orthopedic dentistry has been more discussed than that of extracting teeth for the correction of malocclusion, and distortion of the dentofacial area. Every tooth being a keystone maintaining the harmonious relation of the arches, we may realize the great harm done by injudicious extraction, the result of which destroys the possibility to obtain normal occlusion, and causes a deformity of the dento-facial area which can only be restored by a procedure causing great inconvenience to the patient. Considering this and the fact that such a small percentage of cases exist in which extraction is indicated, we should consider the case from every viewpoint before sacrificing a tooth. It is far better to begin the correction of a deformity without extraction, permitting the progress of the treatment to determine its necessity, than to sacrifice a tooth at the beginning and learn later that it is needed to obtain the best results.

While it is true that great injury results through injudicious extraction in an endeavor to prevent or correct malformation of the teeth and jaws, it is a subject which must be given due consideration; first, because practically all text books on orthodontia advocate the extraction of teeth; second, because it is undoubtedly the only logical way to correct certain deformities. This being the case, writers and teachers should be exceedingly cautious in advocating the extraction of teeth. They should be clear in pointing out the cases in which extraction is indicated. Some cases of extraction might have been avoided had the patient been in the hands of a competent dentist in the earlier years of his life. We must, however, treat the case as it presents itself, be it in the tender years of childhood or in the more advanced years of adolescence. The young woman of 20 or 25 with a distorted dento-facial area, is not so much interested in what could have been done for her in childhood, as she is in the changes which may now be brought about.

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*Read before the Chicago-Odontographic Society, December, 1909.

In the practice of modern orthodontia, the location of the teeth is seldom an excuse for extraction, as the teeth can usually be brought into alignment regardless of their position in the jaws; consequently, any one of the six anterior teeth is seldom sacrificed, as better results may be obtained both from the viewpoint of appearance and occlusion with these teeth in position.

The principal exception to this rule occurs in individuals from 25 to 40 years of age, whose upper teeth are in alignment, posterior teeth in good masticating occlusion, lower incisors crowded and malaligned, and interproximal space practically closed. In these cases an incisor may be be extracted, selecting the one that will leave the adjoining roots the closest, without regard to the location of the crowns, it being a much more simple matter to bring the crowns into correct relation. If there be an irregularity of the upper denture to be corrected, or if the patient be young, instead of extracting these teeth they should be brought into alignment through space gained by expanding the arch.

Most of the injury done through the injudicious extraction in orthodontia is caused by the removal of bicuspids. This is to be expected since, in the majority of cases in which it is necessary to extract, the best results may be obtained by removing these teeth, except in some mouths where the first molars are so badly broken down, they can not be saved, in which case these may be removed instead.

That I may more definitely point out the indications and counterindications for the extraction of bicuspids, I have divided them into classes similar to those outlined in "Dental Orthopedia," by Calvin S. Case.

1. Maleruption of the cuspids.
2. Mesial malocclusion of the upper teeth in relation to the lower.
3. Decided bimaxillary protrusion.

MALERUPTION OF THE CUSPIDS.

In the majority of these cases there is a depression of a portion of the dento-facial area resulting from the distal movement of the anterior teeth, due to the influence of the muscles of the lip, the teeth being permitted to take their unnatural position in most cases by the premature loss of deciduous teeth. The posterior teeth are usually in normal mesio-distal relation, Fig. 1, or drifted slightly mesially.

The treatment of this class of cases lies in forcing posterior teeth distally to their normal position, and the anterior teeth labially; and spreading the arch if it is contracted. In this way gaining space to bring into the line of occlusion the malaligned cuspid tooth; resulting in normal occlusion and perfect harmony in the facial outlines, and not by the extraction of a bicuspid as is occasionally done, which results in a depression of a part of the dento-facial area and malocclusion of the teeth as will be shown in the next slide.

Plate I.

The slide on the screen is made from the models of a young miss, 13 years of age, in which the posterior teeth are in normal occlusion. The median line had moved toward the malaligned cuspid, partially closing the cuspid space. This was corrected by constructing an appliance which would tend to force the anterior teeth mesially and to the right, and the posterior teeth distally; but you will observe the posterior teeth in practically the same position in the completed as in the original model; showing the greater part of the space to have been gained by the movement of the anterior teeth.

Fig. 2 is the cast and models of a young woman, 22 years of age for whom a dentist extracted the upper left first bicuspid some eight years ago while endeavoring to correct a deformity of the upper denture. The right cuspid and left molars are in correct mesiodistal relation, which proves the facial deformity and malocclusion of the teeth to be due to the loss of the extracted bicuspid.

Fig. 3. If the anterior teeth are in normal position, the dento-facial area in perfect harmony with the immovable features of the face, the arch of normal width and the posterior teeth drifted forward the full width of a bicuspid tooth closing the cuspid space, a bicuspid may be removed, permitting the cuspid to occupy the space. This results in perfect interdigitation of the molars and bicuspids, perfect alignment of the teeth, good masticating surface and the dento-facial area the same as if there had been no tooth extracted.

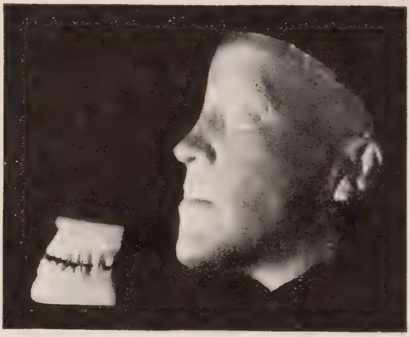

Plate II.

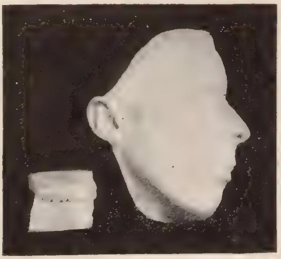

Plate III.

If a tooth is not extracted the molars and bicuspids must be forced distally the width of a bicuspid, which necessitates the breaking up of a good masticating occlusion and forming a new one which, if successfully accomplished, is the same as the original, only the width of a bicuspid farther distally.

This operation, if undertaken, should be performed in young individuals only, as after the eruption of the second molars and the interlocking of the cusps of all posterior teeth, if successful at all, will result in a correction difficult to retain and probably cause impaction of the third molars, and that after great inconvenience to operator and patient.

Unfortunately the original models of Fig. 3 on the screen have become misplaced. However, the posterior teeth were in about the same mesio-distal relation as you see on the screen.

The slide is from the cast and models of a young man, age 21, for whom I extracted a first bicuspid in October, 1902, and brought the malaligned cuspid into position. As you see there is no depression of the dento-facial area. The interdigitation of molars and bicuspids is perfect but they are the distance of a bicuspid tooth mesial to normal when compared with the lower teeth.

MESSIAL MALOCCLUSION OF THE ENTIRE UPPER DENTURE IN RELATION TO THE LOWER.

In this class we may have a decided upper protrusion, a decided lower retrusion, any degree of either, or both, which I have divided into two types.

1st. Retrusion of the lowers, with the upper normal or slightly protruded.

2nd. Protrusion of the upper, with the lower teeth normal, or slightly protruded.

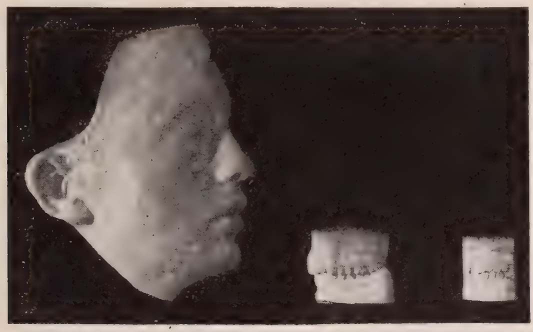

Plate IV.

Fig. 4. *Retrusions of the lower with the upper normal or slightly protruded.*

In this division, especially if the upper is slightly protruded, through a mistake in diagnosis the bicuspids are sometimes injudiciously extracted, resulting in a retrusion of the upper anterior teeth as well as the lower. This mistake being due to the fact that the lower lip when at rest comes under the upper teeth, the labio-mental depression being very much deepened, gives much the same appearance as if the deformity was entirely due to the protrusion of the upper denture. The interdigitation of molars and bicuspids is the same as in upper protrusion.

If models of lower retrusion and upper protrusion are studied and course of treatment outlined without a consideration of the physiognomy, the treatment must necessarily be the same, as there would be no way to designate the retrusion from the protrusion. The result, if treated in the ordinary way, would be in one case (the retrusion) a normal occlusion and perfect harmony of the facial outlines. In the other (the protrusion) a bimaxillary protrusion and deformity of the dento-facial area. It appears to me that there can be no other result when we consider that by the ordinary method, to which I refer, means the placing of appliances on both upper and lower dentures with small intermaxillary rubbers constantly worn, the action of which causes a distal movement of the upper and a mesial movement of the lower. If the attachments on both dentures are the same, the mesial movement of the lower will be much more rapid than the distal movement of upper, due to the fact that there is no resistance in the free movement of the lower, except the natural resistance of the process and the contact of the teeth with each other. In the distal movement of the upper there is the same resistance as the lower and added to this the nonerupted molars combined in many cases with the bony process. The more rapid movement of the lower will bring the teeth into normal occlusion at the correct position to be in perfect harmony with the immovable features, a result which cannot be obtained by removing teeth from the upper denture.

This type is represented by the slide on the screen. (Fig. 4.) A miss, 16 years of age. The upper teeth occlude almost the full width of a bicuspid mesial to the lower, but by looking at the facial outlines we see there is no decided protrusion of the upper part of the dento-facial area, when compared with the immovable features. In the lower the labio-mental depression is deepened, the chin appears pointed, which at once points out the deformity as one due more to lower retrusion than upper protrusion, and should be corrected by bringing the teeth into normal occlusion.

V. *Protrusion of the upper with the lower teeth normal or slightly protruded.*

In this class of cases we have a lower denture which is in normal or mesial relation to the immovable features and of normal width; consequently this arch can neither be expanded nor moved mesially and be in harmony with the facial outlines. This upper is protruded in relation to both the lower and immovable features of the face. The question arises: How are we to reduce the undue prominence of the dento-facial area caused by the protrusion of the upper denture without moving the lower denture mesially? If the protrusion be slight, say less than one-half the width of a bicuspid tooth, this may be accomplished by placing a stationary anchorage on the lower teeth and utilizing the intermaxillary or occipital force, or both, but unless precaution be taken, especially if the patient be not young, the normal occlusion formed will be more or less due to the mesial movement of the lower teeth, depending largely upon the construction of appliances; however, in cases of this character it would be injudicious in the large majority of them to resort to extraction.

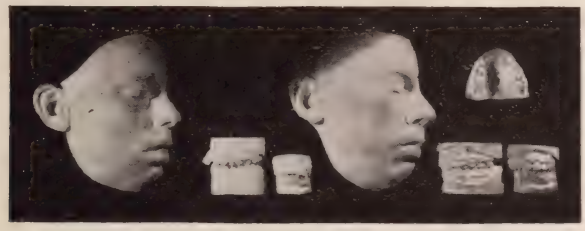

Plate V.

It is often true that the case presents itself for treatment after the eruption of the second and many times the third molar. The entire upper denture is in mesial malocclusion the full width of a bicuspid tooth. Th lower teeth are in normal or mesial relation to the immovable features. The upper anterior teeth are so far labially the patient can close the lips only with difficulty, in all, causing a very decided deformity of the facial outline. It seems to me in this class of cases we should not attempt to correct the deformity by forcing the entire upper denture distally, but instead we should not hesitate to take out the first bicuspid on either side and force the six anterior teeth distally, causing the cuspids to occupy the space formerly occupied by the extracted bicuspids.

The procedure materially lessens the severity of the operation as the entire lower denture and upper posterior teeth are in no way disturbed.

This slide (Fig. 5), illustrates the case just described fairly well. A young boy, age 14. You will observe that the occlusion of this case is almost identical with the one just shown, i e., the entire upper denture is almost the width of a bicuspid tooth mesial to the lower, but upon observing the cast you will see that the upper portion of the dento-facial area is much more protruded in comparison to the immovable features. Even in the corrected case there is a protrusion of the dento-facial area.

In the correction of this case the first bicuspids were removed and the six anterior teeth forced distally, allowing the cuspids to occupy the space of the extracted bicuspids. This was done; 1st because I did not deem it advisable to try to force the entire denture distally the required distance, as I do not believe it would have been done without moving the lower teeth mesially, which would have produced a very unpleasing result; 2nd because the arch could not be expanded sufficiently to reduce the undue prominence, as it is now, as you see, of nearly normal width.

DECIDEDLY BIMAXILLARY PROTRUSION.

Fig. 6. Here we have a class of cases which is peculiar inasmuch

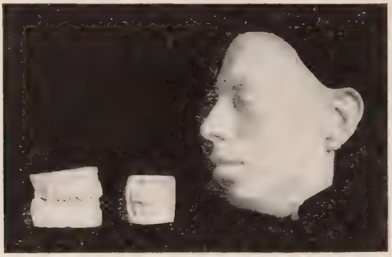

Plate VI.

as we often find accompanying them normal occlusion of the teeth, the immovable features. This is one of the most convincing evidences and yet the dento-facial area is much protruded when compared with we have that the occlusion of the teeth cannot be depended upon entirely for diagnostic purposes, especially when so important a procedure as the extraction of teeth is being considered. In fact, I am contending that teeth should never be extracted until the facial outlines have been studied and the ultimate effect considered. The liability of injudiciously extracting in this class of cases is much less than any I have discussed, since the only condition in which the loss of teeth would not be indicated is in individuals with both dentures contracted to such an extent that by expanding the arches to their normal width, it would reduce the undue prominence of the dento-facial area sufficiently to obliterate the deformity.

The patient from whom this cast and models were taken is a young man, 23 years of age, referred to me by Dr. Calvin S. Case. There is a decided protrusion of the dento-facial area; the teeth are in normal occlusion, excepting a slight malalignment of the lowers; the lower third molars are impacted and the arches are practically normal in width. In this case the arches could not be expanded sufficiently to reduce the deformity, nor could they be forced distally as the third molars are now impacted. Consequently, the only logical treatment lay in the removal of the four bicuspids and forcing the six anterior teeth of both arches distally. From this procedure I hope soon to be able to show satisfactory results.

Considering the cases described, my personal experience and the work of others along this line it appears conclusive that the majority of cases requiring orthodontic measures should be treated by affecting normal occlusion. On the other hand cases exist in which the better result is obtained by the removal of teeth primarily, or after the treatment has progresed to an extent demonstrating that the result without an extraction would present a distorted physiognomy.

MY ENDORSEMENT OF THE ELECTRIC MALLET.*

BY DR. B. G. MAERCKLEIN, MILWAUKEE, WIS.

Mr. President and Members of the Society, I regret that I have not been able to write a paper on the subject, because I have been sick and have been away. I told the Committee that I might be able to give you a paper on this subject, but I will give you in place of that a little off-hand talk in explanation of the working of the instrument.

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*Delivered before the Wisconsin State Dental Society, July, 1909.

I think it is a well known fact, and I may reasonably claim, that I am the first man west of Chicago to use the electric mallet and I have used it from that time to the present successfully. I saw Dr. Marshall H. Webb fill a tooth with it in the summer of 1875 before this Society. He is the one person perhaps, to whom a great deal more credit ought to be given than is usually accorded him in connection with this instrument.

The invention was originally the work of Bonwill but his first invention like those of so many others, was defective; it was so cumbersome and ineffective that it was practically worthless.

Dr. Marshall H. Webb took up the instrument as it existed, changed the size of it; made the magnets very much smaller; wound it with heavier wire and constructed it upon a more scientific basis and added very much more power to the battery to operate the instrument. This made it a very valuable instrument; it worked and gave a blow. The armature simply vibrated backward and forward.

The increase of battery power, difference in winding and the construction of the instrument in general, made it practically what it is to the present day. It has been changed somewhat, but the general appearance and construction is still the same. Now, the operation of the instrument is, in my opinion, the most perfect of any malleting instrument that has so far been devised, provided it is properly adjusted and properly handled. The ease with which is can be handled makes it practicable for you to use your hand in any position and in any direction that you please, while all other malleting instruments connected with an engine interefere, and render it impossible to give that delicacy of touch, which in my opinion, is one of the features necessary to make a perfect filling. The adadjustment of the instrument is unfortunately not understood by many dentists. A very few are able to adjust it properly.

The instrument consists of a pair of horseshoe magnets to which on one side is attached a small rubber stem about four and one-half inches in length. This rubber stem is hollow and into it the mallet is carefully fitted and rests against a hard rubber plunger which is thrown back by a fine spring and propelled forward again by the armature. There is at the same time another small spring, which is interrupted by the force of the armature coming in contact with, or almost in contact with the magnets. This breaks the circuit, thereby making the instrument work automatically, so that when you once have made the circuit, the making and breaking of the circuit causes the armature to work in alternate directions and this in turn causes a very rapid and even blow.

Now, the manufacturers, not being operators, send out a large number of instruments that are very poorly adjusted. There is only a slight vibratory motion in this instrument and if the instrument is not properly adjusted, the working of the mallet is necessarily defective. Another point upon which they do not lay sufficient stress is that the interrupter rod should be so adjusted that it will only make a fair interruption, allowing the armature to get as closely to the ends of the magnets as possible, without actually coming in contact. This will give the most powerful blow, because the closer the armature gets to the magnets, the more powerful the attraction will be, while at a distance the attraction is a great deal less. The spring holding the plugger back against the armature should be so adjusted that whenever an impact is given by the armature to the plugger point, it will move forward and then recoil backward say, probably a thirty-second of an inch. When so adjusted the instrument will respond to the touch of the operator every time he moves his finger forward to make the connection. It gives the operator the most perfect control and ease that I have ever seen. It beats the engine; it beats the hand mallet, on account of its uniformity of blow. The blow can be regulated so that it is very slight or very heavy as the operator may desire by simply handling one screw and giving the armature more pull to come in on the blow. The operator, in filling with the electric mallet and perhaps with all other mechanical mallets, should not rest the point of the instrument solidly against the filling. If he does, then the blow will be a heavy thump and it will jar the tooth in its socket. If, however, the instrument is held back about a thirty-second of an inch, it will give an elastic blow to the tooth, strike it and then bound back. Now, every tooth has a certain amount of elastic resilience, and the tooth will not be injured by the largest filling. If you do that with any other instrument, you will thump the tooth in the socket. This is one of the essential features of the mallet.

Now, in addition to the condition of the plugger points there is only one thing in which there is a large divergence of opinion in regard to all kinds of malleting points. On all malleting plugger points, the serrations ought to be very fine and the serrations ought to be at right angles.

You may say that the force of all blows travels in a direct line, and cannot be changed from that line until some other force changes it or re-directs it. You must, therefore, prepare your cavities in such a manner that you can reach the bulk of the cavity with your mallet if you are going to use mallet force. The hand may be made to follow the curve of the cavity and you can follow from the posterior surfaces forward, but you must bend the instrument and put it in the cavity and follow that curve. The force will be in the direction taken by the instrument.

With these few points in mind and an instrument properly adjusted, you can do work with it as with no other instrument. It takes the place of the finest office assistant that you can possibly obtain for malleting. The blow being uniform and under the control of the operator, you can regulate it with ease.

I regret that I have not been able, under the circumstances, to write out a more lengthy argument on this subject and read it to you, as the instrument is, in my estimation, deserving of it. I have tried nearly all other instruments. I find that in my hands it has no equal. Whatever has been said that it is a very slow working instrument, it has been repeatedly demonstrated that you can put in more gold into a cavity in a limited amount of time with this instrument, than with any other instrument. Dr. Marshall H. Webb years ago made a number of tests; in one of these he put in 43 grains of gold in 40 minutes time. Another man filled in 24 grains of gold in 23 minutes time. It remains for the profession to become more expert in handling the instrument and to learn how to use it. When you have once acquired the exact knowledge you would about as soon quit dentistry as be without the instrument.

SOME REASONS FOR ENDORSING THE USE OF THE HAND MALLET.*

BY DR. E. K. WEDELSTAEDT, ST. PAUL, MINN.

Mr. President, Ladies and Gentlemen: Your committee has requested me to prepare an essay on the subject of "Some Reasons for

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*Read before the Wisconsin State Dental Society, July, 1909.

Endorsing the Use of the Hand Mallet." This is a very busy time in the year and the weather is against a person's ability to do much thinking. Some reasons, will, however, be presented for my endorsement of the hand mallet.

It may be well, if right on the start, you will remember that there are other means of condensing gold besides using a plugger and having an assistant use a mallet. Men who use mechanical mallets often become expert. And perhaps these men might not be able to condense gold as thoroughly by other means as by using the mechanical mallet. From this you can readily judge that it is my intention to view this subject from a perfectly unbiased and unprejudiced standpoint, and in as fairminded a way as is possible. But, bear this in mind, facts are cold things and frequently they are not to our liking.

Whatever may be said, remember that we are dealing with some things which you may prove. It is not a good plan to condemn the ideas of other men with too great severity, until we prove that they are incorrect. Then, and till then, are we in a position to know and know why we know.

I endorse the use of the hand mallet; 1st. Because I am used to that method of operating. 2nd. Because it is the most definite of all methods for condensing gold. 3rd. Because it is the most expeditious of all methods. 4th. Because more gold can be condensed into a cavity by its use than where other means of condensing are used. 5th. Because the hand mallet is at all times under perfect control of the assistant. 6th. Because it is the easiest of all methods for the patient. 7th. Because it is far superior to any of the mechanical mallets.

Here are seven reasons which are worthy of our consideration:

1st.—We become used to some method of operating. Habits are not easy things to break one's self of. Therefore, the hand mallet is preferred because I am used to that means of operating. Every man in this audience has his individual preference for the means which he uses for condensing gold. Dr. Maercklein endorses and uses the electric mallet. He feels that there is nothing else which he could use that would be so satisfactory. On the other hand, Dr. Southwell feels that when it comes to condensing gold there is nothing which he could use that would be so satisfactory, both to himself and his patients, as the Bonwill Mechanical Mallet. There are any number of other gentlemen who smile at this statement, they feeling withal that some other sort of mechanical mallet is the best that there is. We are creatures of habit, and right or wrong, we too often instinctively follow or stick to some things which it would be well for us all to rid ourselves of.

2nd.—The mallet in the hand of an assistant gives results which are as definite as it is possible for a person to obtain. To obtain certain results we wish a two pound blow delivered on the plugger, while condensing the gold in one portion of the cavity, while in another portion of the cavity, a ten pound blow may be necessary. With the trained assistant it is obtained.

For a number of years it has been my teaching to use a given number of blows on pieces of gold foil of definite sizes. Thus a pellet made from one thirty-second of a sheet of gold, should receive not less than forty blows from the hand mallet. A pellet made from a sixteenth of a sheet, should receive not less than eighty blows, etc. Where this plan is followed the result is something definite. The blows are counted as they are delivered and thus the operator knows exactly what he is doing.

If, as we have been led to believe, the dentin is resilient and the best results are obtained by springing the dentin—I say if we believe this—then there is no other means, insofar as this relates to mallet force, for us to use in condensing gold, but a mallet in the hand of an assistant. Most certainly, if a man does not believe that the dentin is resilient, he is not in a position to understand the meaning contained in this statement.

3rd.—It is the most expeditious of all methods, for the reason that an ordinary plugger can be stopped more easily and used more quickly than it is possible to use any of the mechanical mallets. It is also far easier to wedge the gold and "send it home" than by using any of the mechanical mallets. Much tighter joints can be made than by condensing the gold with any of the mechanical mallets.

4th.—Because more gold can be condensed into a cavity by its use than where other means of condensing are used.

This is the part of the essay that is difficult for me to bring to your attention. Altogether too many men are cut on the bias of early acquisition, and on this account men do not wish to be disturbed in what they feel is the security of their belief. Woe betide that man who disturbs our peace or what we may feel is our peace. Suppose that we take the steel cavity block, with a cavity 100 by 143 thousandths (cylinder) and make some experimental fillings, using for this purpose thirty-seconds, i. e., a sheet of number four gold foil which is cut into thirty-two pieces, and each piece is rolled into pellet form. Each piece is annealed prior to being placed in the cavity. What shall result? Let us see.

1st. Hand mallet, 32nds, 50 blows on each piece, 5mm. straight plugger. Weight of filling, 611 milligrams.

2nd. Same as above, but 1mm. 3° round plugger. Weight of filling, 514 milligrams.

3rd.—Automatic mallet, short blow, full force, 25 blows on each piece. Weight of filling, 332 milligrams.

4th.—Same as above, 50 blows given each piece. Weight of filling, 406 milligrams.

5th.—Bonwill Mechanical mallet, serrated plugger, 25 sec. malleting. Weight of filling, 460 milligrams.

6th.—Same as above, smooth plugger used. Weight of filling, 460 milligrams.

7th.—Electric mallet, 25 sec. malleting given each piece. Weight of filling, 279 milligrams.

8th.—same as above, but 35 sec. malleting given each piece. Weight of filling, 358 milligrams.

Let us consider what these results mean and what bearing they have on our operations.

In operating on the human teeth it should be the aim of every man to condense the gold as thoroughly as possible. In condensing the gold the dentin should be slightly sprung so that it will grasp the gold. The gold should be condensed and the cavity filled. Now let us proceed a step farther. I took a cavity in a steel block. The cavity was in the form of a cylinder. Its size was 100 by 143 thousandths of an inch. Every filling was made in the cavity named. Two men, who for years had used mechanical mallets, made fillings for me. I also made fillings. Each operator used the same sized pellets, i. e., 32nds of a sheet of No. 4 gold foil for his operation. Notwithstanding this, there was a variation of from 15 to 75 per cent in the amount of gold the men used in making their operations. Now gentlemen, there must be something wrong with either the men, the methods which they used or else with the condensing power of the mechanical mallets.

Before I go on, allow me to say that I did not come here seeking a controversy. I came here seeking the truth. It is very true I have brought you the results of the weighings of these different fillings, but I have done this purposely. Perhaps some of you gentlemen have made similar experiments, and I should like to compare results with you.

Let us return once more to the results and let them teach us the lesson which, years ago, we should have learned so that by now we would "know it by heart" as the boys say.

There were two fillings condensed with the hand mallet. Weight of fillings, 1,136 milligrams.

There were two fillings condensed with the automatic mallet. Weight of fillings, 738 milligrams.

There were two fillings condensed with the Bonwill Mechanical mallet. Weight of fillings, 920 milligrams.

There were two fillings condensed with the Electric mallet. Weight of fillings, 637 milligrams.

Here is a difference in the results of from 15 to 75 per cent. In other words 15 per cent more gold was condensed in the cavity by using a hand mallet than was condensed in it with the Bonwill Mechanical Mallet. From 33 to 35 per cent more gold was condensed in the cavity with the hand mallet than was condensed in it with the automatic mallet.

From 43 to 75 per cent more gold was condensed in the cavity with the hand mallet than was condensed in it with the electric mallet. (It is no longer any wonder to me, that those who assert that they are experts in the use of the electric mallet have for years and years continually talked about the "Stretching of gold under the stress of occlusion," a thing which I have never observed where gold was condensed with a hand mallet.)

I do not assert that these results are infallible. I merely tell you these results are what were obtained, that the results may be relied on and that they were obtained in good faith. Until they are proved incorrect they should be considered standard.

Take these fillings which are being condensed with the electric mallet, stop right in the middle of the condensing and observe what a plugger and hand mallet will do. Why, for over twenty years many men have known what results. I am neither biased nor prejudiced regarding the use of any mallet, but I am like the man from Missouri, I wish to be shown, provided you have something better than what I use.

Let us consider for just a moment how stress, in the form of extra blows or malleting, influenced the results as they were obtained. In experiment No. 3 each pellet received but twenty-five blows from the automatic mallet. Weight of filling, 332 milligrams.

In experiment No. 4 each piece received fifty blows, and the result was: Weight of filling, 406 milligrams.

Practically the same results were obtained in experiment Nos. 7 and 8. In the two last named experiments ten additional seconds of malleting were given each piece of gold and seventy-nine additional milligrams of gold were placed in the cavity.

Although I have made upwards of one hundred experimental fillings and doubtless I have as many more, which other men have made for me, the results are most unsatisfactory to me personally. What is necessary to do is this: To go into greatest detail by making similar experiments by using pluggers of various forms and sizes with different sized pellets. I have not the time, just now, in which to do this. Your meeting is barely a week from the present writing and as it is, I am hardly able to find time in which to write out my ideas much less begin a new series of experiments which are so essential and necessary, provided, we wish all the data as they relate to this subject.

The men who made the experiments with the mechanical and electric mallets protested against using pellets of gold of a different sort. The result was amusing. The filling which was made with the mechanical mallet, no record being kept as to the time of malleting, weighed but 452 milligrams.

The filling which was made with the electric mallet weighed 386 milligrams.

In one case a lighter filling resulted and in the other a heavier filling was obtained than those made for the experiment, per se.

5th. Because the hand mallet is at all times under the perfect control of the assistant.

A well trained assistant has absolute control of the mallet which she uses. She takes greatest pride in her ability to do her best, and she makes it her business to be of worth to her employer. If, while malleting, she is inattentive and utterly unambitious—a clock studier—as some assistants are, she is a nuisance and better rid of than kept in an office.

6th. From conversation with patients I have been led into believing that the hand mallet suits, by far, the majority of patients much better than any other sort of malleting.

7th. Because the hand mallet is far superior to any of the mechanical mallets.

The mallet, in the hand of an educated and intelligent assistant, is the best possible means of obtaining just what is necessary for condensing gold. i. e., live blows. I know of nothing that is used in the form of mechanical mallets that delivers such blows. On the contrary every form of mechanical mallet, excepting the electric, delivers a dead blow, it is a thud, and a thud is never desired.

The electric mallet does not deliver blows but "pats." It does not weld the gold, it merely pats it down. If this statement is doubted it is a very simple matter to prove it. The results of the experiments to which I have called your attention also prove it.

In condensing gold the object is to weld it, provided that I understand the question. If such is the case, it might be well if those who are interested in this subject would watch the welding of steel and observe what manner of means are used to obtain the best results.

A plugger is much easier to handle than is any of the mechanical mallets. The operator's mind can be concentrated on what he is doing and his movements are not hampered. With a plugger he has much more freedom than where using mechanical mallets of any nature. It is a superior method for the reason that harder and denser fillings may at all times be made.

What we most need is, definite knowledge, not definite knowledge along one line, but definite knowledge along all lines. Take this matter of condensing gold for an example. How much is known about it? Well, not very much and it often seems to me, that few men care to know anything about it. Let me illustrate this: A short time ago while I was standing beside the chair of a prominent dentist, he was observed to pick up two very large Pack's cylinders. He picked up the gold on his plugger, annealed it, then placed it in the cavity, and gave it five blows with the automatic mallet. Throughout the whole operation the same plan was followed. Once he made a mistake and used seven blows. A dozen times he used but four blows. When the operation was completed he had a beautiful looking filling, so far as appearances went, but he had so little density in the mass, that the microbes played hide and seek between the different layers of gold which had been placed in the cavity. But he had a beautiful looking operation.

Because the operator just spoken of displayed so much ignorance in condensing his gold is no reason for condemning the use of the automatic mallet. Not in the least, for every once in a while my attention is called to operations which have stood the test of time—say twenty odd years—where the gold was condensed by using the automatic or some other sort of mechanical mallet. And occasionally some of my patients who are in the neighborhood of sixty years of age, will point with pride to operations which were made forty years ago, and which have every appearance of being made but yesterday. They will tell me that no mallet force of any nature was used in condensing the gold. This is very true, but the men who made the operations, unbeknown to themselves, spread the dentin in condensing the gold. The men spoken of had greatest power in their fingers, and thus many of them could do this.

If in condensing gold foil into those cavities on which we operate, the dentin is sprung so that it grasps the gold, all is accomplished which is necessary. The means used for doing this are not of such great importance. What is important, however, is that it be done.

In this short and hastily written essay, altogether too much has been left unsaid which should be said. You have been given some reasons why I endorse the use of the hand mallet. If my conclusions are wrong, if the results of the experiments are incorrect, call my attention to your proofs and they will receive every attention from me. Remember that the more experimental work a person does, the more one fact is impressed on his mind, and it is this, that errors are likely to take place in the most carefully made work. Before I sit down, I wish to illustrate this statement with a little story. I wished the specific gravity of an experimental filling. My own weighings gave a specific gravity of 17.4. I sent the filling to a well known chemist and asked that he make a specific gravity. You may imagine my horror when forty-eight hours later, he returned the filling with his figures showing a specific gravity of 34.50, and he declared that his figures were correct. I could tell you of several other episodes of a similar nature, but what's the use?

I have not said anything about the specific gravity, for that is not the subject which we are discussing. What we are discussing, however, is the use of the hand mallet.

REPORT ON ENAMELS.*

BY H. G. MORTON, MILWAUKEE.

Mr. President and Members of the Wisconsin State Dental Society: It was intended by the committee that this paper be a report of the experience of the dental profession with the silicate cements, but with those who are familiar with the difficulties attending such a report, they will know how impossible it is to obtain the proper information from the profession and so we will confine the few remarks to what may be attained with plastic porcelain, with suggestions and experience culled from the inquiries sent to members of our Society in the State and a few outside.

I regret to say that out of some fifty letters sent to members of our society, there were not a sufficient number of replies which could be used to advantage, and so I shall only refer to them occasionally without mentioning any individuals.

It has only been within the last twenty years that particular attention, in the way of original research has been taken up by the dental profession. The wondrous changes which this research has brought about in our understanding of the use of materials and methods, should spur us on to greater efforts, as in no profession are the opportunities so great and the field so practically uncovered as in ours. Think what Black has done with amalgam; what changed views we have of that dreaded disease pyorrhea; what Buckley has done in therapeutics, not to mention many others, but to quote from Dr. Black's recent book, "As yet there has been very little careful examination of the physical properties of cements."

The dental profession is placed in a somewhat peculiar position from the fact that most of the materials used are furnished us by commercial houses or manufacturers who offer us gold, alloys, cements and instruments, all with alluring names and many designed to cover the fact that after all, conscientious work is absolutely necessary to success with whatever we use. In many cases the very best of minds and scientific research, with the aid of capital is back of these materials, but we are of necessity handicapped from the fact that competition compels secrecy and it is impossible to obtain the exact formulas to the materials offered. However, this is being somewhat eliminated as I found most courteous replies from a few manufacturers, offering any aid in collecting data as to their products.

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*Read before the Wisconsin State Dental Society, July, 1909.

In our discussion, we will deal only with that group of the cement family which are termed the silicates. There are various names and compounds, and as the replies received from my inquiries found different men using the different silicates, I wish to show no partiality in any way when we refer to Ascher's Artificial Enamel, because this material was the first practical silicate cement offered us, and will be mentioned only in connection with the numerous articles of like nature. In discussing silicate cements I shall use the term "plastic porcelain" almost entirely, for that name seems to imply all we desire to accomplish with this material, as all substitutes for human enamel must possess the elements of porcelain and I quote Dr. Denning in his article on "The Probable Use of Silicate Cements," published in the April *Cosmos,* by saying, "The term chemical or plastic porcelain has been fitly used to describe the nature of a silicate cement; as a filling this material contains many of the constituents of fused porcelain, but the compound has been made at ordinary temperature, by the union of a powder and a liquid instead of as in the case of true porcelain, the union of base and flux, at a high temperature."

If there is any virtue in plastic porcelain, it must stand the test of laboratory experiments and if able to show good results, it would stand to reason that with proper manipulation in the mouth, likewise good results could be obtained.

In trying to find the results of experiments made with cements, including silicates, my attention was called to exhaustive tests which have been made by the Odontological Society of the city of Toronto, with this material, and printed in the *Dominion Dental Journal* of March, 1909, in which they have made experiments covering all the requirements of an ideal cement and while the results obtained do not warrant a final conclusion, they, in all cases, command attention in some directions.

If I may be permitted to quote the definition of an ideal cement adopted by that society, it would be "a material with the strength of the dentin and color of the tooth, the translucence, the wearing properties and the insolubility of the enamel; the same conducting properties, and the contracting and expanding properties in changes of temperature and of moisture as tooth tissue; no more permeable by moisture or bacteria or irritating to the dentin than the enamel; they should mix easily, set quickly, either dry or moist and not be influenced by temperature or moisture. Then accepting the cements as they are, a good filling cement should have the maximum of resistance to attrition and solution, should be fairly impermeable, of great strength and suitable color. Since none are translucent, we cannot have it. It should not be finely ground nor hydraulic, as the very fine and hydraulic properties mean losses in strength." Thus, we have a very clear conception of what the requirements should be.

The test of the Odontological Society conducted included those of permeability by moisture, expansion and contraction, crushing test, tensile tests with briquettes, and attrition tests.

The test for permeability by moisture was obtained with inlays for glass tubes, which had a bore of four millimetres, allowing the filling to go about four millimetres into the tube. The inner surface of some of the tubes were roughened; others were bevelled, while others were left smooth. After the inlays were examined, they were cemented into the tubes and immersed into a solution of red ink for four weeks. Ascher's artificial enamel in four separate mixes showed the fillings to be tight, very porous, no leakage around the fillings and had a very briliant lustre on the surface which came in contact with the glass.

The test for expansion and contraction was accomplished with brass tubing one-half inch in diameter, with one-quarter inch bore cut into one-quarter inch pieces, which when filled with cement gave a cylinder one-quarter inch in length, by one-quarter inch in diameter. Each was filled by placing on a glass slab and the cement added from the bottom with a small spatula, so that no air bubbles could be enclosed. As soon as filled a small bit of German silver or disc of photo celluloid was placed on each end and the tube placed in the micrometer. They were measured at short intervals from this time until the changes had practically ceased. Ascher's artificial enamel in three mixes showed uniform contraction and expansion during its chemical union.

The crushing test was accomplished with cylindrical blocks of cement ⅛-inch in diameter.

The tensile test was accomplished with an intricate machine which can hardly be described without a technical review, but it accomplished its purpose and Ascher's enamel, while not leading in tensile strength showed up remarkably well.

The attrition test was accomplished by inserting the cement into cavities drilled into the ends of rods and then placed into a machine which pressed the ends of the rods with the fillings in them into wet pumice with also a lateral motion. Five thousand strokes were given each set of fillings. It was thought that there might be some difference in the strength of cements inserted at different periods of the same mix, as might occur in putting in several fillings from the same mix. Our impression was that there should be a definite point in crystallization when the cement is strongest. The tests all proved that Ascher's artificial enamel stood them well and I ám indebted to Mr. Pinches of New York Ctiy, who represents Ascher's artificial enamel for furnishing much information. His preparation contains 50 per cent of silicate, which is similar to porcelain, to give the material natural tooth-like appearance and 24 per cent of Barryllium, which as you know is a mineral of great hardness, occuring in green or bluish-green six sided prisms and is indentical with the emerald except in color, the latter having a pure rich green, also traces of oxyid of chrome; the coloring made of the Barryll is oxyid of iron (From the Century Encyclopedia). I understand that the use of this material is covered by letttters patent, which prevents its adaption by anyone else. In adition to the above mentioned are small quantities of aluminum, lime, magnesia and phosphoric acids in the powder, while the liquids are also a phosphoric acid solution, the cement as a whole being very coarsely grained, thereby giving great strength.

Among the various questions raised in the use of this material and brought forth in the questions asked in my inquiries were, "Why does it kill the pulp of the tooth when not properly protected?" In the May issue of the *Cosmos* it was suggested that Ascher's enamel contained 3 per cent of arsenic. That statement, coming from so reliable a source as the *Cosmos* might have weight, but I have been provided with the affidavits of two leading chemists of New York City to the effect that there is absolutely no trace of arsenic in this material. However, my own idea would be, that any cement with the large proportions of phosphoric acids which they contain, would be detrimental to the life of the pulp if placed too close and is borne out by our experiments with the oxy-phosphates; but in Ascher's enamel there is another element which must be considered, and that is the fact that this material is very coarsely ground; is used when mixed stiff and with considerable force in packing into the small recesses of the cavities, which together would be a factor to produce the death of the pulp and in this connection I would add the suggestion of Dr. Hollingsworth, made some time ago, that "in large cavities a lining of ordinary cement or chloro-percha be used, more particularly to protect the artificial enamel from moisture produced by the sweeping of the dentin which we are sure takes place in some teeth, especially those of the young."

In many of the replies to my injuries, discoloration seemed to be the chief factor against this material and I can only suggest that discoloration could take place only through the incorporation of foreign materials, such as dust, old cement, vaseline, the use of metal instruments or carborundum stones used for amalgam work, or one other element which would be the imperfect adaptation of the porcelain at the margin and improper condensation in the center of the mass of the filling material. As you know, plastic porcelain is somewhat peculiar in its mixing and packing properties, resulting in folds being present in the mass if not properly condensed or packed; somewhat similar to the kneading of bread; if not properly kneaded, there will be crevices or fissures in the mass. This element of packing and condensing at the margin would result in leakage and discoloration if not properly manipulated and is very important. If I might suggest a few rules to follow, I believe better results could be obtained: First: Absolute cleanliness of both hands and instruments. Second: In incorporating liquid and powder, my experience has led me to use the word 'dissolve' rather than mix for its first stages of union and as it gradually hardens, of course, force must be exerted. It is absolutely essential that bone or celluloid instruments be used and I think the short bone points of greater service in packing the enamel into cavity of the teeth from the fact that you can use greater force without the danger of breaking the instrument, as the material must be packed firmly and thoroughly into every part of the cavity. In finishing one of these fillings, good results can only be obtained by allowing the enamel to stand at least thirty minutes after packing, or until the chemical action has ceased. The combination of the different chemicals in the powder and liquid generates a certain amount of heat which assists greatly in the setting of the cement. This heat wave generates in the center of the mass and works towards the center. It then retracts to the surface, bringing with it all the free acid which was in the liquid. This action lasts fifteen minutes from the time of insertion and if coated with paraffine the free action is confined and is detrimental. Thus, I believe we should wait at least thirty minutes before attempting to finish. This material has been used and suggested for various places in the mouth but I think rare judgment should be used in placing it. Large contours have been made successfully, but the element of chance is too great and if failures were made it would prevent its further use. I believe it should be confined to proximal cavities in the central incisors and possibly to same in the bicuspids, but the articulation would be the chief factor against its use in either case. Adapting a shade is a somewhat difficult proposition, likewise the shade of an inlay, porcelain crown or any denture. A good rule to follow is: make them darker than the requirements as they are more often too light than otherwise. There are many teeth in the moutth which it is impossible to perfectly match in color, and what we desire to produce after all is an effect; in many cases the exact color does not produce a good effect, because of the varying shades and shadows of the adjoining teeth, therefore many times a neutral shade for an inlay or porcelain filling gives a more pleasing effect.

Plastic porcelain as you all know, is still in its infancy, but we are getting fair results from its use and why not be more particular with it, as there is a demand for that class of work, and if we wish to make anything out of it, let us do it well.

The temptation of many men in our profession is to use the materials offered them, with no thought of requirement of either material or tooth, but attracted by high sounding names or a large package at a small price with disastrous results. As one manufacturer has said, "I would caution you against judging a cement by its selling price, as there is not a cement made (except a Barryllium) which need cost the maker five cents a box, even if the purest of Merck's chemicals be used. The prices are adjusted to the possibility of obtaining them from the dentist, as the more a dealer can make on a box of cement, the more he is going to push that article, and, after all, it is the dealer and his agent who tell the dentist what to use and he uses it."

We are on the eve of great changes in our methods, for never before, as I have said, have we been assisted by chemistry, by experimentation and by the dental societies in exploiting every branch of our work, and it is hoped that every component society of this State society will take up some branch of scientific research.

I regret that so many men in this State have never even used a material of this nature as my inquiries brought out. Dr. Peck of Minneapolis has been experimenting with plastic porcelain in connection with abutments for porcelain crowns, but I am sorry to report, unfavorable results. If a man like Peck can spend his time experimenting with this and other materials, why cannot every one of us at least be thorough and conscientious in its manipulation?

Dr. Hollingsworth, whom I have greatly admired as a man who does things well, has been compelled to discontinue its use but as he says in his letter to me, "It may be myself and not the material that is at fault." On the other hand, I have letters from several men in our own State who have been using this material for some time and who are positive in their assertions that good results are obtained and can be maintained by anyone who will study the matter thoroughly and put forth every effort according to the latest methods for using it.

I believe lastly, good can be obtained by systematic painstaking and thorough manipulation.

PRESIDENT'S ADDRESS.*

BY DR. R. H. DANIELS, PEORIA, ILL.

Mr. President, Members of Peoria County Dental Society:

Permit me to express my sincere appreciation of the honor which you have conferred upon me in electing me president of this society for the past year. I wish to thank the various committees for the splendid work they have accomplished during my term of office, especially the program committeee in selecting, and being able to secure, such able men as Drs. Logan and Buckley, to lecture at two of our regular meetings.

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*Read before the Peoria County Dental Society, January 4, 1910.

We have had a prosperous year, and one of our members, Dr. Whalen, has been honored by being appointed on the Illinois State Dental Board. It has been a good selection, as we all know he is fully competent to fill the place, and I want to congratulate him and thank him for the banquet which he gave the society as a token of appreciation.

Our local society has shown an increase of twelve new members. We have lost a few, one by death, the late Dr. J. F. Houston, who was president of this society during the year 1905. Dr. Houston, was a faithful member, who year after year, without fail, was always with us, and we all deeply deplore his loss, and extend our fraternal and personal sympathies to his affiicted family.

The Illinois State Dental Society, as you are all aware, is not only the largest, but the most progressive dental society in the world today. If you read Dr. Arthur D. Black's address to the State meeting last spring, relating to the systematic principles with which the affairs of the society are being conducted, you will readily understand why our State society ranks first in professional societies today. Most of the success of the society is due to Dr. Black's untiring efforts in the re-organization of dental societies, which was started four years ago. In his address he says that the establishment of good fellowship has not been so easy. I think this can and should be overcome in the local societies where men have an opportunity to become better acquainted. In this strenuous life of ours, exacting from us almost our entire attention to duty, we are apt to lose sight of one of the very ends of education, which is to make of a man a social being. If our education does not bring about a better understanding between man and man; if it does not make us more kindly disposed towards our neighbor; if it does not make us honest and straightforward in our future business relations, then it has been a failure. Good fellowship is one of the many manifestations of true friendship. It is true friendship which we enjoy from year to year, which binds us together. It is necessary for the local society to become well organized and active. Every dentist in practice, in justice to his patients, should frequently consult with his fellow practitioners. The power of association to bring together the forces of nature, and make them operate for the accomplishment of great achievements is greater today than ever before. This is not only true of mankind, but in lower animal life, as they live in companies, herds, flocks, etc. Association stimulates ambition, develops the intellect, and makes one brighter and more companionable. It gives man great power for growth, the growing man learns something from everything he sees or hears.

Only fifty years back, the good fellowship, the cordial exchange of ideas and methods did not exist. At that time, each man guarded his office and methods against his neighbors. From the time the first dental society was organized until the present time, dentistry owes its greatest development to the influence of dental societies. You cannot improve a man by society or other effects unless you can come in contact with him and get him interested in the subject under consideration. A view may be given to an old subject by one man's conception of it, which had never impressed the listener before, but on more careful study and reflection, might be lost forever and never be recalled. It is an old saying, "In many men, there are many minds."

We make dentistry our life time study, our means of existence, and we cannot afford to lose an opportunity to learn or to improve ourselves. There is danger of staying too close to practice. The dental colleges, the dental journals and the dental societies are the progressive forces of dentistry. All of us must learn by experience, and those who take advantage of the experience of others, will learn more rapidly. "Whomsoever thou meet, improve or be improved." It is only in the dental society that we come in contact with the best men of the profession. Men do not assemble at meetings to show their "smartness," but to receive and give what experience has taught them. If a man keeps away from his fellowmen, refrains from social intercourse, isolates himself from his dental societies, he enters a wedge for the cleaving of his calling, and it results in gradual downfall. If we wish earnestly to succeed, we should indentify ourselves with different associations, show an interest in their deliberations, and do our share of the work. If we love our calling with the proper spirit and wish to see it take its place among the foremost professions, to see it grow in importance, and maintain its honorable usefulness, we should do all we can to assist in its growth. It is the individuals that make the component societies, and the component the State societies.

One of the most important questions confronting our profession today is the regulation of fees, in which at present there seems to be a disregard for a uniform basis. It is generally regulated by the community, the quality of patronage, and the prices usually charged by other dentists in that locality, but in every community, there will be found at least one dentist who receives better pay, more appreciation for his work, and consequently lives better. Every dentist locating in a new community should call upon the resident dentist and ascertain as nearly as possible the fees received by him. The resident dentist should feel it his duty to be frank and inform his new fellow practitioner, his manner of doing business and the fees he receives. This in time should bring about a uniform standard of fees.

It seems to be the universal cry of the older men of the profession to get the young men interested and started. In order to make life a success, it must be started aright. As the old adage has it, "A thing well begun, is already half done." Just as the runner must have a right start if he wishes to win the race, so also in the race of life, much depends upon how we began our career. The more we know, the less we find we know. As our knowledge increases, the field of knowledge widens and we realize how puny our attainments are, and how much there is still to be mastered. Success in life is an object of almost universal desire. A famous writer once said that "Success is sweet, the sweeter if long delayed and attained through manifold struggles and defeats."

We young men of today, have a better chance of success than the older practitioners had, because we are better grounded in the elements of dentistry and have a broader foundation to build on. To realize success in its true sense, one should love his profession and his heart should be in his work. The majority of us, after we finish our college education, bend every energy to the acquirement of a practice that shall fill all the hours of the day, and after we have accomplished this, we feel we have done our duty. There seems to be a lack of ambition to lead a higher professional life. College chairs today are filled largely by men who came when dentistry was young, and journals are edited and books written by men past middle life.

Who are to take their places when the day of retirement comes? Are we preparing ourselves to step in and carry forward the good work? These places must be filled. The men in the past have added to our store of knowledge by experiments and investigations, they have devised appliances that have lightened our labor. They have thought out the methods by which many problems have been solved, written our books, taught in our colleges and edited our journals. They have been men who wanted to benefit their professional brethern and were ambitious to place our colleges on a higher and broader plane. They were willing to burn the midnight oil, and knew full well the meaning of self-denial and sacrifice. Their chief reward has been a consciousness of duty and the gratitude of those whom they have benefited. Are there any amongst us younger men of the profession who are willing to qualify ourselves for work along the same lines, and who would be satisfied with the same reward? Let us realize we owe a debt of gratitude to our profession that should be paid. Let us feel that the good work which has been, and is now being done unselfishly by others, is to be continued. The post graduate course which is being started by the State Dental Society promises to be a great help to the individual in particular, and the society in general. A selected committee of able men were appointed to pick out the most important articles in the dental journals, classify and index them so the members can readily locate the different articles on any subject. The man who is willing in the beginning to do a little, will soon place himself on the active list in the progressive work of the profession.

No word should stand out more prominently in the vocabularly of a young man of today, than the word, "Perseverance" for the obstacles to be overcome in mounting the ladder of success, are greater and more difficult than several years ago. "They who would rise, must learn to stoop, as climbers have to bend." Thus persevering efforts will and must win out, no matter how difficult the work set before us, or how slowly we seem to grip it, plug away and you will win out. Let us all convince ourselves of this one truth, that what comes easy to us, often is easiest lost, while what we attain by patient plodding, we appreciate the more and cling to the most tenaciously.

The following poem, composed by an old soldier, was given to us by one of our professors at college:

"Why is the wine the purest that is the hardest pressed?
Why follow the days of toil, the nights of sweetest rest?
Why comes the subtlest perfume from flowers that bloom in the shade?
Why from the valley of grief and tears, come boys from whom heroes are made?
Do you think the life of Jesus, would have had the power to thrill.
Were it not for Gethesemane and Calvary's shadowy hill.
Do you think your life and mine would be what it is today.
If the shadows that came into it, had passed some other way?"

THE RELATION OF ADEQUATE REMUNERATION TO IDEAL DENTISTRY.*

BY DR. C. B. MEAD, ROCKFORD, ILL.

With very few exceptions, men are selfish, some to a greater degree than others; hence the average man tries to accumulate as much wealth as he can during what may be a short period of activity. As Henry George has said: "It is the fear of want that makes most of us strive to accumulate wealth." We see so much from the pens of some of our foremost men regarding our duty to the public that one might conclude that fees were of secondary importance. It is fortunate for the profession in general that some of our brother practitioners spend their time and money for the love of advancing our noble work and receiving our commendation, thus giving us an opportunity of following and endeavoring to reach the ideal. We owe it to ourselves and our families, if we have any, and I am happy to say I have one though it is small, to provide for a time when sickness, accident, or old age makes it impossible for us to follow our profession, so the fear of want and the hope of being able to satisfy our desires, makes the average dentist as well as the average man a chaser of the almighty dollar.

Every young dentist is anxious that each succeeding year show an increased income, and while many don't like to admit it, yet, I am sure to their innermost selves they must admit it is the money that is the great factor in giving them the inspiration to succeed. When a young man first opens his office, ready to show any unsuspecting person who may drop in for his services, what he can do, he usually has so much time on his hands that every operation is the best he can do, generally at the fee he considers as universally collected by the average practitioner, without any relation to the time he consumes. While he is thus building a practice, which will build if he strives for the ideal and tries to render every service to the best of his ability, his wants and desires increase as he assumes greater responsibilities in this life, and a desire if not a necessity for a certain income follows. As his time becomes more valuable he cannot spend so much of it, even though he has become more proficient and rapid as he grows older in practice, to give what he considers ideal service unless he raises his fee or spends less time on each operation.

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*Read before the Northern Illinois Dental Society, October, 1909.

The average salesman (and our commercial salesmen are considered a bright set of young men), can sell goods when he has a price equal to or less than his competitor, but how few have the courage and confidence in their ability to go forth and sell goods, if they have merit and often when they are not superior, at prices above a competitor? That is salesmanship; there is only a small percentage that do it, and those of course develop into the high salaried ones. It is not my idea that dentistry should resolve itself to a commercial basis and my allusion to it is only to show that it is lack of confidence in one's ability to do what a few accomplish; possibly also a lack of training. This applies to dentists as well as to persons of any calling, who look forward to a competency, and consequently, the one who has not the courage and confidence in his ability to make those who are able, recompense him properly for his best services, believes his patients will go elsewhere if he charges adequately for the time he gives them.

We find some of our brother practitioners, members of our societies discussing subjects from the ideal point of view, talking of extention for prevention, the necessity of proper root filling and treating and various subjects. One would think they were constant students of Black, Johnson and others, and no doubt they are yet for lack of courage and fear of losing a patient, they spend just sufficient time to earn the fee that the other timid or ignorant brother receives, and shirk hard work, forgetting for the time Black and Johnson teachings. They get away from the ideal and always have a fixed charge for a certain kind of filling or other operation, because the general public has been educated by timid and incompetent ones not to consider our time and our calling on a par with other professions. I said such an one was afraid of losing his patient by doing his best and charging for his time accordingly; he may lose him if he doesn't and if they were not so ignorant regarding ideal service he would lose many more.

We all have patients who are entitled to the best there is in us, who cannot recompense as they should for the service rendered; these we must take care of to the best of our ability and make our fee what they can afford, but when it comes to those who can spend money for luxuries even though they are in moderate circumstances, they should expect the best service and a fee accordingly.

In justice to our patients we should not be influenced by the conduct of our neighbor and certainly in justice to ourselves we should do our best, and it is my firm opinion that one must get what his services are worth if at all times he aims at the ideal.

Not long ago a brother practitioner told me of a lady who had become dissatisfied with the services of her dentist. She had begun to wonder why certain work failed. No extension for prevention, no fissures and pits removed, as this same dentist knows they should be, for he is a member of a progressive society that has discussed those things many times. She remarked: "Dr. So-and-So doesn't charge any more than he did fifteen years ago," and it was her idea that he should be a better dentist today and get better fees for his services than he did when she started with him. Because he was afraid to charge more than the average man he could not do the ideal and make as much money as he felt he should. So he does his patient an injustice when the patient was willing to pay for value received. When such men reach middle life, we find many of them working every day from eight until five trying to keep their income up to a certain amount, health breaking from constant confinement and overwork when by always striving for the ideal and receiving an adequate fee they would be recognized as worthy of more than the timid careless man and have it gladly given—making their work easier and possible for them to have a competency to sustain them in old age.

Not all of us are fitted by nature or by training, to be the leaders or amongst the best of our profession, but by conscientious effort, all can improve and come nearer to the ideal, and the greatest factor to my mind in bringing that result is having a high opinion of one's own ability, and having the courage to impress it on one's patients by naming a fee that is adequate remuneration for the best service one can render.

People of moderate means are not satisfied with inferior clothes, food and other necessities of life, and know that superior articles must cost more. Why should they be satisfied with inferior dentistry?

When in Danville last May attending the state society meeting, it was my privilege to have a visit, while waiting for the train, with one of our foremost Chicago men; one we all know and whose ability as an operator and teacher we all respect. It was his opinion that in the near future the fee question would have to be a society problem. I am sure it has much to do with ideal dentistry, and if every one had the courage to charge an adequate fee, the public would get better service, we would have better dentists, and the fee question would take care of itself.

The majority of you know nothing about me. You see by the program that my name is Mead and I hail from Rockford. Many of you will ask: "Has he a fine practice, and is he one of your lealing dentists?" The old men who are active in society work and our leaders get tired of writing papers, and they like to find some young practitioner to lighten their burdens, so I was induced by the program committee to make my first attempt at presenting a subject.

Some time ago a patient said to me: "Doctor, how long have you been in practice?" If I had told him he might have thought me inexperienced. I replied: "Look at the top of that head. Why? I am nearly forty years old. What would you guess my age?" That turned the subject and I presume he thinks I have been in practice many years. I am young in dentistry; just making a living, but this paper represents my ideas as to what is justice to patient and self, and time only can demonstrate what my success shall be.

PROCEEDINGS OF SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting of the Chicago-Odontographic Society was held in the Chicago Public Library, on Tuesday, December 21, 1909, at 7:45 p. m.

Dr. W. H. C. Logan, president of the society, occupied the chair.

Dr. Elliott R. Carpenter presented a paper on "Arsenical Devitalization versus Pressure Anesthesia in Pulp Extirpation."

This was followed by a paper entitled: "A Consideration of the Advisability for Extracting Teeth in Orthopedic Dentistry," by Dr. T. L. Grisamore.

The discussion of Dr. Carpenter's paper was opened by

Dr. G. Walter Dittmar, Chicago.

Mr. President and Members of the Chicago-Odontographic Society:

Before I enter into the discussion of Dr. Carpenter's paper, I wish to compliment him on the able and concise way in which he handled the subject before us this evening.

The facts submitted for our consideration are worthy of our careful study and reflection. While I can not agree with all he has said and also regret that he has so closely confined his remarks to the two subjects, viz. arsenical devitilization and pressure anesthesia in pulp extirpation, he has, fortunately, for me, left somthing to say, not so much in criticism of what he has said, but rather in addition. There are, however, a few points which I wish to consider before elaborating on the subject matter of the paper.

The essayist spoke of the sign board at the fork of the roads, the left pointing to antiquity—(the arsenic method) the right pointing to modernism—(the pressure anesthesia method) and he winds up his able discourse on arsenic, with the following: "But I can not in this day and age of asepsis countenance the use of a drug that after it has accomplished its work, you have to wait until a sloughing of the pulp ends has taken place at the apical foramen, because until sloughing has taken place apical inflammation is too great to allow of extirpation. Thus you deliberately produce a septic condition which you afterwards have to combat. Pathologically, it is against all modern ideas of surgical asepsis."

These paragraphs are surely unmistakable in their expression and to my humble way of thinking—just as radical.

In the handling of our patients—in the rectifying of abnormal conditions in the mouth, in the technique of our therapeutic applications—or the modus operandi of our surgical procedure, there are only some broad basic principles, which all should follow. In the treatment of any case, it is our desire to obtain a result and the result sought in the subject under discussion this evening is the most rational, humane and successful method of surgically removing dental pulps. Now, in the attaining of this result, in my opinion, there is one thing that stands out prominently and that one thing is an important factor in the attainment of every result. It is the so called personal equation. The method and technique that you may use most successfully may in my hands prove, to a degree, a failure, and vice versa—thus, personally, and I believe, I voice the sentiments of a majority of the profession, but I could not so confortably, to my patients or to myself or so successfully practice my profession and entirely eliminate arsenic. The use of this drug to me, is often a boon, though I appreciate the dire results that may ensue from its misuse; not, I am very happy to state, from personal experiences, but from my observation in a dental infirmary and other unfortunate cases, I have seen, where it has not been hermetically sealed into the cavity and caused arsenical necrosis. Its proper use, however, intelligently and carefully applied, gives results in many cases, which I believe could not so well be obtained in the use of pressure anesthesia alone. Mark you—I am a constant user of pressure anesthesia and in cases, where to me its use is indicated, I invariably use it but I frequently find cases and conditions where an application of arsenious acid, (I use the arsenical fiber, sold by the S. S. White Dental Mfg. Co.) taking a pellet two or three times the size of an ordinary pin head, saturate this with a saturated solution of cocain hydrochlorate in 95 per cent phenol—this, I apply to the exposure, if there is one—if there is not, I do not make an exposure and needlessly and cruelly torture the patient, unless the hyperemic condition of the pulp is such that the ache or pain can not be relieved without surgical interference, thereby puncturing the pulp and producing hemorrhage. The point I wish to make is that an exposure is by no means always necessary, and I use arsenic much more for the purpose of desensitizing the dentin and often part of the pulp than for devitilizing the pulp in toto, thus being enabled to thoroughly cleanse by mechanical means, and without pain, the cavity of all infected dentin and properly open the pulp chamber. Then after I feel that I have the cavity clean, rather sterile, I proceed with my anesthetic solution and pressure and after anesthetizing the remainder of the pulp, proceed to remove it to the best of my ability, which in the multirooted teeth, containing secondary dentin or pulp modules, requires perserverance, much patience and considerable time—and then we sometimes fail to get it all.

Then again I occasionally find a pulp that with the most persistent efforts on my part refuses to yield to pressure anesthesia—to these, I apply arsenic, as above indicated—the 95 per cent phenol and cocain acting as an obtundent and antiseptic. The arsenic acting on the dentin and, if left for several days will devitalize the pulp.

Where I wish to devitilize entirely with arsenic, and in the molars I occasionally do, I usually make two applications, unless there is an exposure to begin with, otherwise I usually see the patient from 24 to 48 hours after the first application. Then I can, as a rule painlessly expose the pulp, making the exposure with a very small, sharp bud shaped bur in such a way as not to plunge into the pulp. This allows of some hemorrhage, the pulp is relieved of its congestion; after which a second application of arsenic is sealed onto the exposure, without pressure and left for from three days to a week.

When the patient presents again, thoroughly open the pulp cavity so as to plainly expose all the canals, then test the sensibility of the pulp with a fine smooth broach. If there is no sensation, remove it with either a fine barbed or spiral broach. If there is sensation place an antiseptic dressing, I usually use 95 per cent phenol, seal the cavity and let it go for a week or longer. When the patient again appears the pulp can, as a rule be removed painlessly. Should there be pain—95 per cent phenol carefully teased to the apex of the root with a fine smooth broach in a few minutes anesthetizes that part of the pulp and it can be removed. Even if the pulp has sloughed off at the apical portion, there need and in fact there should be no sepsis.

Where conditions indicate no hemorrhage or soreness, I almost invariably fill the root at the time, with the best of success, which is more than I can say where I fill the root immediately after extirpation of the pulp with pressure anesthesia.

In the use of arsenic and also pressure anesthesia I agree with the esayist in the use of the rubber dam and every antiseptic precaution. From what I have said, it will be understood that I use pressure anesthesia alone principally in the ten anterior teeth upper and lower, especially where I can force the anesthetic through healthy dentin, or when the cavity, (if an exposure exists,) has been freed from carious dentin and sterilized with a treatment of thymo-cresol or other good disinfectant which should be sealed into the cavity for a day or two, for it is my belief that often the apical pericemetitis, resulting from pressure anesthesia is caused by an infection due to forcing germs and ptomaines into the apical space. Therefore, I much prefer to force the anesthetic through uninfected dentin.

The technique I employ with greatest success in the removal of pulps with pressure anesthesia is in brief as follows: With a sharp bud shaped bur, I penetrate through the enamel on the anterior teeth usually on the lingual surface, though if the tooth is to be subsequently crowned, I open to the dentin on the labial surface, near the gingival portion of the tooth. Just as the dentin is reached there most always is pain, I then immediately stop with the bud shaped bur and substitute it with a round bur—number ½ S. S. White. With this I penetrate the dentina trifle, depending on the sensitiveness of the dentin and the disposition of the patient to bear pain. My aim being to cause as little pain as possible and yet get as near the pulp as I can. I now use a high pressure syringe for forcing my anesthetic into the dentin. I have the Sapp obtunding syringe. Care must be exercised in fitting the point of the syringe accurately into the small hole produced by the bur, so that no leakage ensues upon the application of pressure. Now cause gradual and constant pressure for about two minutes, then wait a couple of minutes longer and if you really have forced your solution into the dentin and not lost it by leakage, you will almost invariably have succeeded in thoroughly anesthetizing the dentin. This you will soon ascertain by the use of the bur in drilling. I then proceed to open the tooth on the lingual or occlusal, so that I can conveniently and thoroughly remove the pulp, if it is at all possible to do so. Should sensation be again encountered in the dentin before I expose the pulp, I again apply the syringe. If, however, I have succeeded in exposing the pulp and find it sensative, I now use my solution as indicated by the essayist. Instead of dissolving the cocain in 1/1,000 Adrenilin Chlorid. I use a Park Davis preparation called Codrenin, which is a 1/5,000 solution of Adrenilin Chlorid, the fluid ounce of which contains Cocain hydrochlorid, 9½ grains—chlorotone—2¼ grains and physological salt solution Q. S.—It is a 2 per cent cocain solution containing ½ per cent of chlorotone.

This is a very stable compound and I have for several years used it alone, as a solvent for the additional cocain. I incorporate making practically a satured solution of cocain. This has worked very successfully for me. I agree with the essayist and do not advocate, as a rule, the filling of the root immediately after extirpation of the pulp with pressure anesthesia.

Too often there is soreness in the apical region, which may be caused by the irritating action of the cocain, an over filled root, or an infection. I, as a rule, seal a mild antiseptic and sedative treatment into the canal and let it rest for several days before filling.

Another thing I wish the essayist had laid stress on, and that is the proper opening and exposing of the entire pulp chamber and all the root canals. Success or failure of the operation ultimately depends, so much on this and the entire removal of the anesthetized or devitalized pulp.

Again, I have encountered a few pulps that resisted most tenaciously both pressure anesthesia and arsenic. In single rooted teeth for the removal of this class of pulps, an administeration of nitrous oxid gas is most effective and satisfactory—and in some of those real fine tortuous canals—95 per cent phenol, carefully teased into the canal with a fine stiff smooth broach, followed by a drop of pure sulphuric acid and a fine spiral broach of the Downie or Kerr pattern will, with patience and persistance, usually obtain the desired results. Before closing my discussion, I feel it a duty and in my humble way, will endeavor to pay tribute to a man, who gave to our profession, what really has proven, and will continue to be a God send—something which, in reality, has made the excavating of sensitive cavities and the removal of living pulps, a comparatively painless operation.

The result of this discovery it is impossible to conceive. The time saved and the satisfaction with which the dentist can operate is indeed no small item, but this is of little consequence, compared to the removal from the minds of the laity of the fear and dread they possessed of having dental operations performed.

To my mind, the advance in dentistry, during the past fifteen years, and the greatly increased proportion of the public seeking dental services is in no small measure due to this discovery by a dentist. It is with pride, that I say a Chicago dentist. It was during the year 1890 while a student at the American College of Dental Surgery that the idea of pressure anesthesia first suggested itself to who is now Dr. Levi L. Funk of 77 Jackson Boulevard, this city.

I am pleased to see Dr. Funk in the audience and I hope the president will call on him for a few remarks.

DISCUSSION OF DR. GRISAMORE'S PAPER.

DR. I. B. SELLERY:

Mr. President, and Fellow-Members: I have listened to the paper this evening with a great deal of pleasure. It has taught me considerable, and also strengthened my own opinions on several points. The first paragraph of the paper impressed me very forcibly, the paragraph concerning the extraction of teeth. Extraction is a very serious matter, and we should be very sure of our ground before sacrificing a tooth, and thereby impairing the occlusion that nature planned.

I do not agree with the essayist in some particulars. For instance, when he states that in cases of so-called protusion of the uppers and lowers he would extract the upper first bicuspid on either side, as well as the lower, I think that he is wrong. I have seen at least three cases where this has been done and, as a result, after the retainers were removed, back the anterior teeth went, and the space where the bicuspids had been became a resort for food, points of contact in other localities were destroyed, and there was resultant decay. So, I think it is a mistake to extract these bicuspids. Indeed I am unalterably opposed to extracting except in very, very rare and exceptional cases. I believe in getting the mesio-distal relationship normal, having the first molars in normal position, broadening the arch sufficiently, and thus reducing the protrusion. I am extracting less and less each year that I have been engaged in the work of orthodontia.

Now, there is no rule that will always work. This you know to be true in all departments of dentistry. You find it to be true in cases of extirpation of pulps. There are times when conditions will warrant the use of cocain, and there are times when conditions will warrant the use of arsenic, but there is no rule that will work always. So, I admit that there are very rare occasions in which we are warranted in extracting.

As far as the extraction of the first permanent molars is concerned, I have never seen a case where the first molars—and especially the lowers—were extracted without more or less serious injury. I have seen cases—rare cases—where the first molars were extracted when the patient was very young, and the second permanent molars, had moved in a mesial direction. At the same time the bicuspids had drifted a little distally, the points of contact were destroyed, and you know what that means; it simply means, in the majority of cases, a resultant decay. The basis of the bite is gone.

I want to take issue on these points then. I won't consent to sacrificing the lower and upper bicuspids in the same case to reduce the protrusion. I believe that the occlusion can be corrected by getting the molars in normal position, and then broadening the arch enough to reduce the protrusion; and never—there must of course be an exception, but I have not met it yet—never have I seen good results when the first permanent molars have been extracted.

Now I have not put down my ideas in writing, and I have a little motive behind that. When men discuss a paper it should result in a discussion. I think very often we get up here, and instead of discussing the paper, we present other papers. I think these discussions should be more informal than they are, and that we should all take part. I am speaking off-hand with the motive of getting others to get into the discussion. I may be wrong, but my impresion is that there is a little too much formality in the Chicago-Odontographic Society. We don't all take hold, and if we can arrange to have things more informal, we will be taking a step forward. On the whole, the most profitable and enjoyable dental "society" I attend is one where we sit around in the evening, and exchange confidences. One man drops in and says: "Well, I made a failure today all right. You see, it was this way—." Another chips in: "I had a queer case of extraction yesterday, and I'm afraid I committed an immoral divorce between the man and his tooth. Let me see what you think of it—." It's the informal confidences and swapping of experiences, that come from informality, that are most helpful, and that's why I have talked informally tonight.

GENERAL DISCUSSION.

DR. L. L. FUNK:

Mr. President, Ladies and Gentlemen: It will be twenty years next month since I first began to experiment with cocain pressure anesthesia, and since that time I have certainly gone through with a lot of experimenting. I first commenced with a 10 per cent solution of cocain, and from that time on I have used in combination with cocain various kinds of drugs, because I thought I might perhaps strike an infallible combination. I have used in combination with cocain creosote, carbolic acid, chloroform, ether, gasolin, iodin, turpentine and a number of other drugs. I have experimented without cocain, but I did not have very good success. Some people claim that they have had good results without using cocain.

I intended to bring a set of directions which I had printed years ago, but I forget to do so. I believe Dr. Carpenter stated that he used a pledget of cotton for carrying his medicaments into the cavity. Cotton was the first thing that I used for this purpose, but I soon found that spunk is a much better agent because it is more compact. By using the spunk, you can always see just where you are placing the medicine because the spunk is black when it is satured with the solution.

The method I have generally used is to take crystals of cocain—there is just as much in having the right kind of cocain as there is in having the proper preparation of any other drug. Many of the cocains which are on the market are practically useless for pressure anesthesia. I used Mallenkraudts large crystals up to the time that adrenalin came in, and, I think, perhaps the adrenalin and cocain is better for the average case. I do not think that I ever had any better success than the first time that I took a pulp, which was about half sloughed away, out of a central incisor. That was, I think, the latter part of April, 1891.

I do not think I can add much to what has already been said, but with the permission of the society I will digress a little from the subject and tell of experiments of a directly opposite nature which I have worked out with more or less success. This is not a formal paper, but these are some of the main thoughts. In cleaning out my safe last week I found a paper which I read several years ago, and it occured to me that a part of it might fit in with the subject this evening—open up a new line of thought, and set the craft to work. The title of the paper mentioned is "The Origin, Manipulation and Benefits of Pressure Medication and Feeding with or without Heat, Cold Light and Vacuum."

For years I have tried in vain to get the medical profession to take up this work and perfect it for the administration of medicines and feeding through the tissues. The possibilities for curing disease by this method are unlimited. Some of the supposedly incurable diseases might yield readily to drugs applied in this manner. It is my belief that this will be the future humane treatment for cancer, tuberculosis, tormenting pains, various fevers, chills and other ills. Gases, liquids and solids can be forced through the tissues. General anesthesia might be produced and rendered less dangerous. When the stomach or other parts of the intestinal tract are incapable of performing their functions, the body can be nourished by pressure feeding. By keeping drugs out of the stomach we would often leave it in a better condition to perform its work. Some of the devices which I have gotten up for this work are as follows. A cabinet is used large enough so that a person could walk into it, after which it could be hermetically sealed. Then apply gas, hydraulic or air pressure through tubes, or otherwise. In cases where local treatment is desired, I have devised a cup and a disc of rubber of the required thickness with a hole in the center. The disc is fastened over the open end of the cup in the manner of a drum head; forcing the rim down flush with the rubber, being careful to have it tight enough so the air will not escape when pressure is applied. The object of this is to do away with the distress which might be occasioned by pressing a hard rim against the flesh. There should be enough of the rubber disc left inside of the cup rim so when pressure is applied the disc will be forced against the part, filling up the inequalities, preventing air from escaping and retaining the pressure. A receptacle could be made in this manner large enough to admit the limbs or the entire trunk of the body. A sleeve-like form of receptacle is made of collapsible material so it can be drawn close about the part with draw-strings. A hollow rubber ball, with a portion of its surface cut away, makes an excellent pressure cup for circumscribed areas. In preparing a part for pressure treatment a vacuum should first be applied in order to draw effete matter from the pores. Then the surface should be thoroughly cleaned and dried. This would leave the part in better condition to take up the medicament or food, which may be applied in any desired manner. The entire body may be placed in a vacuum, and by the admission of the proper amount of gases, heat, cold, sun or artificial light, intensified normal or subnormal. Conditions could be made to correspond to the atmosphere of any altitude. Wonderful good might be derived from the vacuum treatment in pulmonary and other diseases. I have removed pulp and derbis from teeth, evacuated abscesses through the roots of teeth by suddenly applying a powerful vacuum. I have placed antiseptics in the roots of teeth before using a broach. Then I applied intermittent suction in order to triturate the mass and cause the sterilizing agent to permeate it. I then pumped the matter from the tooth, and afterwards cleansed it with cotton. By this method of treatment there is no danger of forcing septic poison through the apical foramen. I have anesthetized dentin and other tissues by what might be termed vacuum anesthesia.

I gave a talk before this society on the subject of pressure anesthesia in 1905, which was printed in the March issue of the DENTAL REVIEW of the same year.

I want to say a word in answer to the gentleman who spoke just before me. He suggested that there was too much formality about this society. There may be some members in this society who are somewhat like myself. If I did not jot down my thoughts on paper, I would be liable to forget some of the vital points I intended to make. Therefore, I think, it is a good idea for each member to study the subject during his leisure moments and present his argument from paper.

DR. S. W. FAHRNEY:

Mr. President: Fellow Members of the Chicago-Odontographic Society: Our president has just informed us that tonight is the first time Dr. Sellery has discussed a paper before this society and I wish to say that it is also my first time to stand before you in that capacity. I have never felt, until this evening, that I had the right to discuss the important subject of orthodontia, which covers such a vast field that unless the operator has had years of experience along that special line of work he may be so easily mistaken in his diagnosis and treatment.

So many general practitioners of today are taking up orthodontia as a specialty, although they have had no great amount of training, if any, and their experience has probably been limited to a few cases, which they tried to regulate in some crude manner of their own. Therefore, gentlemen, tonight I fell it is my right to state the views I have on the subject, which have been formed after years of constant practice in this special branch of dentistry.

Permit me now to say that I agree with what Dr. Grisamore has said in regard to the extraction or non-extraction of teeth during the correction of facial and oral deformities due to irregularities of the teeth. After ten years of experience in the field of the orthodontist, I wish to say that great care should be shown in the diagnosis of the case to be treated, if there is a question of saving all or extracting one or more teeth. A tooth may be easily extracted but it is not so easily put back to its proper position when once extracted and the adjoining teeth have moved and filled the space. For this reason it is very often advisable to do as Dr. Grisamore has stated, which is to attempt the correction of the case first without the extraction of teeth. If by putting all of the teeth in their proper alignment a facial deformity is either allowed to remain or is produced, teeth should then be extracted so as to allow a reduction on the size of the arch or arches and thereby correct the deformity.

I cannot agree with Dr. Sellery when he says all of the teeth should be allowed to remain in the arches. There are so many different facial irregularities which may exist with all of the teeth in the arches and the upper and lower arches in normal occlusion. Supposing you are treating a bi-maxillary protrusion, with the teeth of the two arches meeting properly, in their relation to each other, are you going to allow that protrusion to remain or are you going to correct the deformity, which is always apparent? Very often it is necessary to extract the four first or second bicuspids to correct such a condition. Dr. Sellery said spaces closed after the extraction of teeth, would always reopen. I cannot agree with that statement, for if the work has been done properly and the teeth retained for a reasonable length of time in good masticating occlusion, the spaces will not open. Such an operation can be done and is being done repeatedly with success.

Gentlemen, it is my opinion that a stumbling block for a great many dentists is that they consider occlusion first and the outline of the face when considered at all, comes second. I believe the outward appearance should come first for it certainly does in the eyes of the laity. True we should strive for normal occlusion but not at the cost of the features of the face. The teeth should be so regulated that they will be as near normal as possible, when the facial contour is satisfactory. If a sacrifice has to be made do not have it in the most conspicuous place, the contour of the face. A case may come to you for treatment and you study the outline of the face and decide you will produce a protrusion if all the teeth are put in line. Or if the arches are expanded sufficiently to put all of the teeth in line without causing a protrusion, there will be an unnatural appearance of the corners of the mouth and cheeks. In such a case it is better to extract and make a smaller arch or arches.

Being fortunate enough to be so closely associated with Dr. Case for so many years, I am well acquainted with his teachings and Dr. Grisamore has followed out the methods that Dr. Case has advocated. I was going to say the "Case method" but Dr. Case never would allow me to apply that name. He said it is not the "Case method" but merely what he advises practitioners to use, from a common sense stand point. Dr. Case extracts teeth in some cases and does not in others. He would consider it as much mal-practice not to extract if such treatment should be necessary as he would consider it malpractice to extract teeth when they should be saved.

It would take a long time to go over all of the cases presented and discuss whether or not a tooth should be extracted or saved in each individual case, so I will end by saying Dr. Grisamore covered the subject very satisfactorily.

Dr. C. S. Case:

The question of extraction in orthodontia, in all its various phases, is so extensive that only its most prominent features can be thoroughly considered in a single society paper, nor can much be said in the short time permitted in its discussion.

There are however certain underlying principles which may be briefly stated:

First: Teeth should never be extracted merely as a convenience to their regulation, because however crowded or jumbled in position, they can always be placed in alignment in the arch, where their presence may be absolutely necessary for the correction of occlusion and dento-facial outlines.

Second: The importance of a normal occlusion of the teeth which I believe is fully understood and appreciated by the entire thinking dental profession, leads to the rule that teeth should never be extracted in the practice of orthodontia except in cases of decided protrusion which cause facial deformities that cannot be otherwise corrected.

This refers to those cases in which the entire denture—the buccal teeth as well as the anterior teeth—are placed through inherent causes, too far forward, in relation to the jaws and normal facial outlines; producing facial deformities which cannot be corrected by lateral expansion of the arch nor by a possible distal movement of buccal teeth.

If anyone will give a little thought to these rules they will see that they exclude a very large proportion of all irregularities of the teeth from the operation of extraction in their correction. Under this head will be found included nearly all the numerous simple and complex mal-positions that arise from local causes, in which the disto-mesial relation of buccal occlusion are not far from normal. It includes a very large proportion of the class of irregularities which is characterized by maleruption of the cuspids. It includes a goodly proportion of that character in which the upper denture occludes about the width of a bicuspid in front of a normal occlusion. Finally it concludes all retrusions of the upper except the rare cases in which the lower denture is decidedly protruded in relation to the mandible.

I wish to say a few words in emphasizing the essayist's claims relative to one of the prominent characters which demand extraction, and in the correction of which—in my opinion—the avoidance of extraction would be quite as culpable as the extraction of teeth when not demanded. It applies to that character of malocclusions in which the upper teeth are far in front of a normal occlusion with the lower.

In a classification based upon occlusion alone, irregularities of the teeth that are characterized by this malocclusion are placed in one class and constitute Dr. Angle's Class II. If classified according to real conditions however, they should be placed in two classes, because their extremes differ from each other in facial effects and in correct methods of treatment quite as much as it is possible for classes to differ. The extremes are: First: decided protrusions of the upper with lower normal, and Second: decided retrusion of the lower with upper normal or with upper moderately protruded. In the first division which constitutes my Class II, the extraction of teeth is *demanded;* whereas in the second division which in my classification is placed as Class III, the extraction of teeth for orthopedic correction would be *decidedly malpractice,* though as will be seen in both of these classes the occlusion of the teeth is the same.

The reason that extraction is demanded in the first of these divisions of occlusions is: because the entire upper denture is placed so far forward of normal relations that it is impossible to retrude it in phalanx sufficiently to overcome the facial deformity which it produces—it being impossible or at least impracticable to move buccal teeth distally more than one-half the width of a cusp. When the so-called correction of these cases is accomplished without extraction, by placing the teeth in normal occlusion—which is always easily possible—the lower teeth are moved forward to meet the distance required in the failure of the upper teeth to move backward. With the ordinary methods of applying the intermaxillary force the forward movement of the lower denture will be about twice as great as the backward movement of the upper. Therefore if the lower denture, at the beginning of the operation, is in normal relation or as it may be slightly in front of normal relations to the balance of the normally placed outlines, the final result must inevitably be: an *abnormal protrusion of the lower* with only *a partial correction of the upper protrusion,* thus leaving the patient with features stamped through life by a bi-maxillary protrusion.

I regret to say that this is exactly that which is being thoughtlessly accomplished upon hundreds of little ones who by inheritance have this particular character of mal-occlusion; by orthodontists who are opposed to the extraction of teeth in any case, under the belief that a normal occlusion is far more important than the eradication of a facial deformity.

In regard to decided protrusions of the lower denture in relation to the mandible which are occasionally met with in connection with retrusions of the upper, but more often with protrusions of the upper, and which in this latter relation constitute the quite common bimaxillary protrusions from inherent causes, there certainly should not be the slightest objection to the extraction of teeth in orthodontic operations as correction of the facial deformity will otherwise be found absolutely impossible.

DR. L. L. BURROUGHS:

Mr. President: There has been one note unsounded here tonight, and that is the fact that extraction is perhaps necessary in the older patients, but I think never in the younger ones. It seems to me that double protrusion, with normal width and normal occlusion is a condition absolutely impossible in the well developed face. That leads me to make this statement, that if these cases are treated at the proper age, which is during the developmental period, the double protrusion cannot possibly exist, if the case is taken care of, and the conditions which would bring about mal-occlusion rectified at the proper time. There may be cases in the older class of patients, where, from a mercenary standpoint the patient is not able to go through a serious operation by moving the teeth, where extraction is permissable; also in cases where the patient is too old to expect permanent retension. The younger cases are those where I think this work ought to be begun, and watched from the beginning of the development of the teeth, so that any condition which may arise to cause mal-occlusion of any kind can be corrected at that time. We cannot get all those cases at that period, and we must consider the cases as they come to us, but, as I have said, double protrusion with normal width of the arches and normal occlusion seem to me to be a condition that is almost impossible.

I am very glad to say a few words in commendation of the paper tonight. I am glad that they are speaking of extracting with a great deal more caution than formerly. It is a matter we must consider with very great attention, and as one of the speakers has said, an extracted tooth can never be replaced. I think in the majority of cases it is best to go ahead and try to make the occlusion normal, rather than to go ahead and find out our mistakes afterwards. Both of our great writers today, Dr. Angle and Dr. Case, have made the statement that all the teeth are necessary in the normal development of the face, for the best dental and facial contour. It seems to me that that is a statement that is correct in any way that you may wish to look at it, and if we work toward that end of keeping all the teeth in the mouth, and keeping the conditions normal by getting at them earlier, and that is what I want to emphasize tonight—getting at them early, and if they are going wrong guiding them into their normal positions we will accomplish something.

Dr. F. B. Noyes:

Mr. President, I am sorry that I did not see the paper before the meeting, as I was occupied more or less with the lantern, and could not follow it as closely as I would have liked during its reading. I do not want to go into a discussion of the paper in detail. If this were a meeting of orthodontists, and I had an opportunity to prepare such a discussion, I would be glad to take up case after case, as presented, and enter into a detailed discussion of each individual condition, but that I would consider out of place before a society of general practitioners.

I am in more or less of a difficulty, because I feel that in some ways the essayist and I look at the whole problem from different points of view, that we are reasoning from different bases, that we have very little common ground from which to start, but still we have one common object that is to obtain a normal face, and to correct and prevent abnormal faces.

Dr. Sellery made one definite objection to one particular case, but instead of doing that I would take the same case and make a general objection to the effect that you can move the teeth any place you like. You can move them in any direction, and to any degree, but the teeth will remain only in the position where the forces to which they are subjected are in balance. I do not care what time of life you choose. The teeth may retain a normal occlusion through a long perior of life. Throw the balance of forces out of harmony, and the teeth will begin to move just as surely as you begin to move them if you apply any regulating appliance to them.

Now one speaker has said that he preferred to consider the outside or the face first, and the occlusion second. I would ask him, what has made the outside, and I will answer it by saying that it is the occlusion. Modern orthodontia may be defined as a study of the relationship between the teeth and the development of the face. What has built the bones of the face? The distribution of mechanical forces through occlusion, and in proportion as the teeth are out of normal occlusion, you will have lack of balance in the development of the bones. We go back, then, to a fundamental point of view, and the appeal that I want to make to the general practitioner is to study occlusion, and recognize mal-occlusion in children before that mal-occlusion has stamped a deformity upon the face. Orthodontia consists more in placing the teeth in normal occlusion, so that the forces of nature will produce a normal and harmoneous balance of the face than in allowing mal-occlusions to remain until deformities have been produced, and then attempting in vain to correct the deformity. Orthodontia should be practiced on growing children. You may move the teeth, but orthodontia for the adult does not exist. It is not orthodontia. It is patching up on a bad job, the doing of what we can for the deformity. There are different conditions to be handled, and they must be treated in different ways. It is an entirely different proposition.

Now I cannot, in anything that I may say, impress the general practitioner strongly enough of his obligation to his patient in the matter of the examination of occlusion. Remember, that if you have failed to recognize mal-occlusions you are responsible for the deformity of the face. More than that, given a certain mal-occlusion, and you can foretell exactly what will be the facial deformity as a result. The position that the teeth will take is not a matter of chance. It is a matter of definite, thinkable, recognizable laws. Duplicate the conditions in two cases and you will duplicate the results. Extract certain teeth in two cases, and the resulting effects will be parallel. You have thrown certain things out of balance, and the remaining forces will act and produce mechanically accurate results. The last thing that I want to say, then, is that the face is the result of all the forces distributed through the bone, by the agency of occlusion. Normal occlusion, in balance; mal-occlusion, out of balance.

Dr. F. H. Skinner:

Mr. President, Guests and Members of the Society:

I wish to compliment both the essayists for the able way in which they have covered their respective subjects, although about all I know of orthodontia is that there would be fewer mistakes made in it if the average general practitioner of dentistry would consult an authority on the subject, before he undertook to correct dental or facial deformities, and better yet, would send the young patients to a specialist in that line whenever a suspicion of irregularity is developing.

Regarding Dr. Carpenter's paper on pressure anesthesia, I do not doubt but what Dr. Carpenter, in his careful, accurate technique, removes all decay possible from a cavity and disinfects thoroughly before applying pressure anesthesia, but he omitted to say anything about it. In this way a great deal of pain can be saved the patient by applying essential oils and menthol on a pellet of cotton and blowing as warm air as patient can stand on it.

If there is no exposure, it is not necessary to plunge a bur into a sensitive pulp in order to get anesthesia. Cocain goes through dentin very easily if you confine it and get pressure behind it. I sometimes have gotten complete anesthesia of a pulp by applying cocain and pressure when only just through the enamel.

The essayist spoke of the septic condition of a pulp following the application of arsenic before removal of a pulp. I do not believe that when a pulp has sufficient arsenic in it to cause its death it is in a septic condition, for arsenic is one of our most powerful disinfectants, mumifiers and preservatives.

So far, everything stated regarding pressure anesthesia has been in connection with high pressure syringe or rubber and they are both hard to control. A few years ago I stumbled onto white base plate guttapercha, (not pink guttapercha or any form of temporary stopping) and since then have not run across a tooth that I could not render perfectly insensible to pain. No matter what the shape of the cavity is, by warming a proper sized piece of white base plate guttapercha, you can shape it so that it is concaved just over where the cocain solution is placed and yet will be in contact with all margins of cavity; allow it to cool until almost hard (about thirty seconds), then warm edges, dip into oil of cajuput and place in cavity and apply pressure; if it is properly shaped and of the right temperature to hold its shape and yet be plastic, and is reinforced with a proper shaped instrument or the finger, as the case may indicate, there will be no leakage except through the dental tubuli or into the pulp. It is sometimes a little painful at first, but this stage is soon over, and complete anesthesia is bound to be the result.

I have had the best results by using equal parts of acestoria and adrenalin chlorid, with a few crystals of cocain added, and always make a fresh mixture for each case. I have applied arsenic only once, I think, in the last four years, and that was because of lack of time rather than not being able to get pulp under cocain.

Dr. L. S. Lourie:

Mr. President, I want to second what Dr. Sellery and the others have said regarding the pleasure with which we received the first part of Dr. Grisamore's paper. My exception, however, would be in this respect, that I would cut down the number of exceptional cases where extraction is justifiable. I think it should be confined largely to adults, and cases where, on account of previous extraction there is a lack of development of the maxillary bones, which can not be compensated for rather than the conditions illustrated in the several cases shown by the essayist this evening. Of course, it may be considered largely a matter of opinion as to whether or not there is such a thing as bi-maxillary protrusion. In fact, in determining the treatment for any protrusion, either upper or lower, or both, it is largely a matter of opinion as to how much deformity exists, and as to the treatment advisable for correcting that deformity. It seems to be generally conceded that if it is possible to save all the teeth, that is the thing to do. I believe that if the plan is followed of attempting to correct these conditions without extraction it will be discovered that cases of real double protrusion, or bi-maxillary protrusion are much more rare than is at present supposed by some operators.

I will not take the time to further discuss the subject, although if we had unlimited time, and I had had the paper beforehand, there are many points that we could, no doubt, discuss with interest.

DR. F. E. ROACH:

Mr. President, I did not mean to discuss this paper at all, but not for any lack of interest in the subject. It seems to me that in attending the meetings of this society we should endeavor to get a lesson from the papers that are given us, and while I shall not attempt to discuss the papers, either pro or con, more than to say that I got a lesson from each of them, I will give you what I got frcm those papers for what it is worth.

In the papers, and in the discussion on orthodontia I got the lesson that it is important to us as practitioners to make a study of our young patient's mouths, and to, if possible, preclude the dangers of facial deformity that are most sure to occur from the mal-occlusion that exists. So that it is our duty, as general practitioners, to study these cases, and, if possible, ward off these deformities by either correcting them ourselves, or send them to men who are specializing in this work, and are capable of doing for these young patients the things that are necessary to be done. This, as I say, is the lesson I got from the papers and discussion on the subject of orthodontia.

On the subject of the removal of pulps either by arsenic or pressure anesthesia, I quite agree with the essayist in that I believe that the use of arsenic is practically the obsolete method of removing or devitalizing the pulp. It has been my experience that cases that I cannot remove by the use of cocain or pressure anesthesia, it is quite impossible to remove them with arsenic. I find that cases upon which the cocain will not act under pressure anesthesia properly applied, are not susceptible to treatment with arsenic. Personally I am heartily in accord with Dr. Carpenter in this respect in the use of pressure anesthesia. It has been my practice to use pressure anesthesia almost exclusively for a great number of years, and I become more enthusiastic about it every year. I got this lesson from his paper, that his careful application, and the nicety with which Dr. Carpenter outlined the technique of the application of pressure anesthesia is worthy of commendation, and worthy of our consideration. We can take this, and use it. He has given it to us, and if we will follow out his instructions I think we will have practically universal results.

Dr. E. R. Carpenter, in closing the discussion, said:

Mr. President, I stand a good deal in the same position tonight in this society that a patent filler does in a newspaper that goes into the country. At the last moment, at least it was the last moment to me, I was told that I would be obliged to read a paper this evening, and that the paper must be on pressure anesthesia and arsenic. So I got together my scattered wits, and made the most I could out of it.

I believe that the object of all papers read before professional bodies is not self-glorification, but to elicit the truth, and with that view in mind I read the paper. I did know in my college days that arsenic was used for a preservative of the cadaver, so I must acknowledge a little Bunk in my paper.

In regard to Dr. Skinner's comments referring to previous sterilization, that is a point that I did not think necessary to even comment on, because all carious matter should be removed at once. I thank you.

Dr. T. L. Grisamore: (Closing the discussion).

I am indeed glad I read the first part of the paper as that seemed to be the part most enjoyed by the majority of men who took part in the discussion.

The discussion has been almost entirely upon two points. The age of the patient and bimaxillary protrusion.

I agree that patients should be looked after while young and if they receive the proper treatment we would not have so many cases of irregularity and I also agree that we should be exceedingly cautious in extracting teeth for young individuals. In fact there is no doubt that many cases in which teeth are sacrificed such a procedure would not have been necessary had the patient received the proper care in childhood.

There seems to be a question in the minds of some present as to the existence of the cases commonly known as bimaxillary protrusion. We do have these cases and they do not always come to us when they are children. They come when they are twenty or twenty-five years of age. These are the conditions we are confronted with and the questions is, how are we going to treat them?

Here is a case of bimaxillary protrusion (referring to slide No. 6) and if you would expand that arch sufficiently to reduce the undue prominence you would certainly have the arches expanded out of all proportion when compared with the unchangeable features.

Dr. Noyes says you can force the teeth anywhere you choose. Perhaps you can force the teeth anywhere you choose but he would certainly have a difficult task if he should undertake to force the lower arch in this case distally a sufficient distance to reduce the prominence, as the third molars are now impacted. He says, when referring to the occlusion of the teeth, "the inside makes the outside." That is true, but in all cases, ladies and gentlemen, the same inside does not make the same outside. You will see many cases in which the occlusion of the teeth is identical and the facial outlines entirely different, that is, we may have in one case a retrusion of the lower, in another a protrusion of the upper and the occlusion of the teeth in both cases be identical. I believe Dr. Noyes said work for old patients was not orthodontia. He said it was patch work. Perhaps it is. Regardless of what it is we have to do it just the same. If by extracting teeth we can get more nearly perfect facial outlines, and just as good masticating occlusion, why not do it? The patients are more interested in getting a more nearly perfect physiognomy with a good masticating occlusion, than they are in an ideal normal occlusion. It is in cases of this character where the extraction of teeth is more often indicated. It is in cases of this character where the ideal normal occlusion is the most difficult to produce.

I want to thank each one who has taken part in the discussion. You do not criticize me half as badly as I had anticipated. I was asked to read a paper upon this subject, and as I had formed definite opinions from what I had been taught and read, I accepted. I felt if I could put my ideas in writing, bring them to you and be convinced that I was in the wrong that my time and energies would be well spent, but as yet I have not been convinced.

I thank you.

WISCONSIN STATE DENTAL SOCIETY MEETING AT MILWAUKEE, JULY, 1909.

REPORTS OF TESTS IN CLINICS GIVEN BEFORE THE SOCIETY.

DR. CHARLES L. BABCOCK:

In announcing the result of Test Clinic No. 1, permit me to first remind you that this is the first time a public test of materials and methods has been made in this way. I would like if the time were not getting so late, and I felt the necessity for being brief, to tell you something of the story of the hours and days and weeks of painstaking work which Dr. Southwell put upon this in an effort to perfect the details so that whatever of practical value might be found in the test might be brought forward, and at the same time I would like to suggest in some little way the manner in which we believe this test will prove of value. We think it is more practical, more definite, than any test of filling materials and methods which has heretofore been brought forward. The apparatus which Dr. Southwell has devised is not expensive; it is not bulky or cumbersome, and it would be practicable for every dentist who wished to have one in his office to do so. By it he could test various materials and ways of using them for his own satisfaction; as for example, whether it is best to fill undercuts with soft or with annealed gold or whether pellets or foil would be best for the margin, and amalgam fillings could be tested as to whether a soft mix, a half dry mix or a dry mix should be used; also in the testing of root fillings it seems to me that it is quite practicable and would be valuable. There is another point which is of value, and that is the use of bovine teeth for experimental and technical work in colleges. It seems to me that the texture is excellent for that purpose.

Before reading the result I wish to make another explanation, and that is that the operators were working under serious disadvantages. Dr. Southwell's being unexpectedly taken sick left us in some confusion and the arrangements were not as perfectly made as they would have been had he been here. The newness of the test is another reason why we could not forsee all of the difficulties. Those using the engine mallets were operating under especially unusual and inconvenient conditions. This must of necessity make the time taken and the results obtained imperfect and the test not a full and satisfactory one. But the spirit in which it was conceived and in which it was entered into by those taking part, was simply to find out if possible what there might be in the test. Viewed in that way I consider the results very encouraging.

There were eight men who entered in this Test Clinic No. 1. The first on the list was Dr. Doyle who used Watts' gold and Rowans' pellets. I meant to have ascertained whether he annealed the Watts' gold and some other particulars about it, but I failed to do so. Dr. Doyle used hand pressure; the time consumed was 31¼ minutes. Tested by air for leakage it showed no leakage whatever under sixty pounds pressure. Tested for strain (you will find the description of how these were prepared in the program) it yielded at thirty-three pounds. (Dr. Doyle says that every piece was annealed).

The second on the list is Dr. Harold E. Holbrook. He used Pack's cylinders, hand pressure and automatic mallet; time consumed 37¼ minutes; showed leakage at forty-three pounds pressure; yielded to strain at thirty-two pounds.

The third was Dr. M. L. Christensen. He used Pack's cylinders; automatic mallet; time consumed 36½ minutes; showed a very slight leakage at nine pounds pressure, at another point it showed leakage at thirty-six pounds. It did not pull out under the strain, that is, the filling did not part, but the whole tooth broke at sixty-four pounds.

Fourth on the list was Dr. Wm. Hopkinson. He used Hood's gold and Hood's pellets; I believe the first was unannealed and the second annealed. Method, hand mallet; time consumed 21¾ minutes; showed slight leakage at sixty pounds air pressure. Yielded to strain at forty-eight pounds.

Dr. E. A. Geilfuss was the fifth. He used Rowan's cylinders and Nee's foil; method, Bonwill mechanical mallet; time consumed twenty-eight minutes; showed slight leakage at thirty-five pounds air pressure, and the peculiarity of this, which I wish to mention, is that this leakage was not at the margin, but was through the gold. This leakage did not increase with the increase in pressure and was only slight as it did not effervesce as the pressure increased. It yielded to strain at thirty-four pounds.

Dr. W. J. Claasen used Watt's gold, hand pressure and hand mallet; time consumed thirty-seven minutes; showed slight leakage at fifty-three pounds pressure. Yielded to strain at seventy-six pounds.

Dr. L. J. Stephan used Pack's cylinders and Ney's foil; method, Bonwill mechanical mallet; time consumed 36½ minutes; showed very slight leakage at nineteen pounds and leakage did not increase with any pressure. Yielded to strain at thirty-eight pounds.

Dr. P. B. Wright used Watt's gold; hand and automatic mallet; time consumed, thirty-five minutes, showed slight leakage at twenty-five pounds pressure, increased very slightly at forty pounds and yielded to strain at twenty-four pounds.

REPORT OF THE JUDGES ON CLINIC No. 2.

REPORT MADE BY DR. C. N. JOHNSON, CHICAGO, ILL.

In this clinic fillings were made in previously prepared large cavities in the lingual aspect of the crowns of fresh bovine incisors so prepared as to involve the incisal edge. The teeth were from the same animal and had been kept moist. As nearly as possible uniformity of cavities was secured.

FILLING NO. 1.

Operator—Dr. R. E. Maercklein, Milwaukee, Wis.

Method—Electric Mallet.

Kind of gold—Ney's cohesive No. 3 folded.

Time of packing—28 minutes 15 seconds.

Condition of filling before finishing—Considerably more than full.

Time required for finishing—14 minutes, 15 seconds.

Condition of contour and margins—Overfull on lingual surface and along all lingual margins. Labial good except slight defect at one margin. Incisal edge of gold slightly convex.

Leakage—At 14 pounds leaked in 2 places, at gingival, and at 24 pounds leaked profusely at incisal.

Specific gravity—At 60 degrees F. 14.90.

FILLING NO. 2.

Operator—Dr. L. A. Meyer, Oconomowoc, Wis.

Method—Mechanical Mallet.

Kind of gold—Pack's cylinders.

Time of packing—36 minutes, 30 seconds.

Condition of filling before finishing—Slightly over full.

Time required for finishing—15 minutes.

Condition of contour and margins—Contour good. Slightly overfull on lingual margin. One slight concavity on lingual, labial good.

Leakage—At 24 pounds leaked at one place on labial surface, and did not change materially up to 60 pounds.

Specific gravity—At 60 degrees F. 17.73.

FILLING NO. 3.

Operator—Dr. A. C. Searl, Owatonna, Minn.

Method—Mallet in hand of assistant.

Kind of gold—Cohesive pellets.

Time of packing—42 minutes, 50 seconds.

Condition of filling before finishing—Slightly under full.

Time required for finishing—11 minutes, 15 seconds.

Condition of contour and margins—Slightly concave on lingual, one slight defect on labial—not quite full—small pit.

Leakage—At 4 pounds leaked in one place, at 7 pounds 2 places at incisal, at 24 pounds 3 places at incisal.

Specific gravity—At 60 degrees F. 15.55.

The specific gravity was made by J. S. Janssen, Ph. D., and reported back to the Judges. As a matter of additional interest the specific gravity was made of a filling inserted by Dr. B. G. Maercklein and worn in a left upper central incisor for twelve years when the tooth was broken by a blow on the filling. This was inserted by the electric mallet and showed a specific gravity of 18.48.

In the clinic in question the operators worked under the disadvantage of being away from their usual environment and of working outside of the mouth, but with all of this, considering the conditions, they performed most creditable operations, and the Judges wish to extend to them their thanks for their loyal aid in making the Clinic a success. They are all operators of a high order of skill and the Society was fortunate in securing their services.

Signed:

C. N. Johnson,
Arthur D. Black,
B. G. Maercklein.

Dr. Arthur D. Black:

Mr. President and Members of the Wisconsin State Dental Society: I want to discuss this general subject a little bit in the spirit suggested by a story which most of us have heard. At one time a couple of visitors in the United States Senate heard Dr. Hale opening the exercises with prayer. One asked the other, "Does he pray for the Senate?" The other replied, "No, he looks at the Senate and prays for the people." I do not care so much about the length of time it takes to place a filling as the length of time that filling is going to stay. The tests that have been made and the papers that have been read today have all been extremely interesting to me, and they should set us all to thinking.

There are several things in connection with the placing of a gold filling, that a man should bear in mind. Specific gravity of a filling is one thing; and the adaptation of the gold to the cavity walls is another thing. We may mallet gold ever so hard and make a very hard gold filling, and yet an absolutely worthless one. We may mallet a filling more lightly and yet make a splendid filling if the adaptation is right. We may have a filling with a very high specific gravity that is not a good filling. The question of placing a good gold filling does not depend upon any one thing, but upon the application of the proper knowledge of all things necessary in each particular case. In considering the condensation of gold, there are several items that we must take into consideration. The three most important are: the force of the blow that we deliver; the size of the plugger point we use. and the one thing that too many of us forget, the resistance that is offered to the blow by the tooth as it stands in its socket. We must mallet harder or must have smaller plugger points in packing gold into the cavity in the tooth of a child, because the peridental membrane supporting such a tooth allows more movement of the tooth than is the case in the older person.

A tooth is supported by fibres and if we strike a blow with any kind of a mechanical mallet, we strike the tooth as it stands suspended in its socket. If we can render the fibres of the peridental membrane tense before the blow is struck, we will get a better result, In other words, if the operator will, before each blow is struck, make pressure on the tooth with his plugger point, the tooth will offer more resistance to the blow and he will get greater condensation of the gold from a given blow. This I consider a decided advantage to be gained by the use of the hand mallet by an assistant.

I want to remind you again that the area of the end of the plugger point is a very important thing to consider in condensing gold. If you double the diameter of the plugger point; if you change from a plugger one millimeter in diameter to a plugger two millimeters in diameter, you must strike four times as hard a blow to get the same condensation of gold. Therefore, by adjusting your plugger points, larger or smaller, to the particular case in hand, according to the resistance offered, you can by striking more and lighter blows on the smaller point get the same result that you would with less number and heavier blows on a larger point.

One of the interesting features of the experiments reported here today is that all but two of them showed imperfect adaptation of gold. I want to lay particular emphasis on the fact that the dental profession as a whole does not pay enough attention to the proper direction of the force used to adapt the gold to the wall of the cavity. That must apply to every part of the wall in all portions of the cavity, because the leakage in any one place is just as bad as if it leaked everywhere.

I want to mention five things that we should think about in placing gold fillings. First: We ought to think about how we will lay on each piece of gold, that is, how we will build up our fillings in order to keep our gold in the most solid mass. We must keep it in as compact a mass as possible, and not spread it out in a thin layer over any wall or margin. Second: We should study the direction of the force as we apply it, in order to get a proper adaptation of that gold. Third: In order to get the greatest density, we should have some definite manner of stepping the plugger over the piece of gold, so that we do it in a systematic way. Fourth: We should study the proposition of wedging the gold against the dentin so as to take advantage of the tremendous elasticity of the dentin. Fifth: We should study carefully the size of the plugger points so as to get the best possible condensation with the least pain to the patient. We should also study the force of the blow that should be delivered on the plugger points in order to get the proper condensation.

The experiments we have witnessed here today and the papers that have been read, should set each one of us thinking for himself to the end that we will appreciate the fact that if we are going to make fillings that will last, we must study all of these things in connection with every filling that we make.

Dr. C. N. Johnson:

The thing that impresses me more than anything else is this: that we cannot get away from the personal equation. I would be willing as a patient, and from the point of view of the patient, to take the chair of a man who is conscientious and who has become accustomed to one method of operating and accept his experience. These things can be reduced through study to a mechanical exactness and the tests that have been made today have been along that line. I wish that Dr. Southwell were here in order that I might express my thanks for this work. The question of principle comes in in all of our work, and I know that if we have studied the fundamental basis of the proper condensation and adaptation of gold, we must rely upon that particular method which in our individual hands will give the best result. In other words, we must put intelligence into our operations. When we study carefully the results of our operations from our records of operations made in the teeth in the mouth we have a basis for guidance which I believe is safer than all others. That brings me to the question that I believe more important than the tests and that is, that records must be carefully kept. A man should be able to turn to any operation and know precisely the result of that operation, know the circumstances under which it was performed and be able to base his future practice on the years of experience he has put in at the chair. It is the work that we do at the chair that is the most significant.

I want to express my appreciation of the operators in clinic No. 2, and I say to you in all frankness, that if I had a tooth to fill, I would shut my eyes, put myself in the chair and let either one of them fill it.

One of the requisites of a good gold filling is to seal the cavity against leakage. You may have a filling that is hard, but if it leaks it is not a good filling and it will not do service very long. You may have a filling that is of high specific gravity; if it leaks you will not have a good filling. The thing to remember first of all is to seal the cavity. There are a great many things that must be considered; we must have sufficient specific gravity to make the filling stand up under the stress exerted upon it during mastication. I would not expect a filling to stand up under severe usage with a specific gravity lower than 14. The form of the filling is of great importance when the comfort of the patient is considered. Our work should be based on the comfort of the patient in mastication.

I want to say another thing, if I may, and that is that in your present reorganization plan you have a problem before you. The interest has grown immensely now and it remains for you to maintain that interest. The danger is that your interest will relax. Keep it up to the highest point. You have a great opportunity to make a record here. We in Illinois will run a race with you, and it will be a lively one and we will make you go some. Develop your component societies; work with that idea in your minds and remember always that they are the most important factor in your success.

DR. MAYER (Oconomowoc):

I just wish to express my appreciation of the comment passed by the Judges on Clinics Nos. 1 and 2. About twenty-five years ago I was fortunate enough to have Dr. C. N. Johnson as instructor. When I saw his name on the program today it gave me much pleasure as it afforded me an opportunity to meet my former teacher.

I rise to defend the mechanical mallet with Dr. Southwell. I wish to say that I have been operating with the mechanical mallet for seventeen years and with entire satisfaction to myself and I consider that I am giving to my patients value received. It takes time and perseverance to use the mechanical mallet and get out of it what is in the instrument. I do not contend that the mechanical mallet is the only mallet that can be used to put in a perfect filling. As far as the plugger is concerned, I have used foot plugger S. S. White No. 47 ever since I used the mallet. I have had it manufactured with some modifications to suit my various needs. It is a very small one. It has very fine serrations. Dr. Southwell uses one of his own pattern which is similar. I feel that I get very good results and he also does that. It is a matter of individuality in operating. We all have our own way.

DR. WENDEL:

I want to say a few words on this subject. In the preparation of these teeth a drill was used that would only cut a certain depth and as Dr. Johnson has told you in his address, the pulp chamber was encroached upon. These cavities were not prepared along the same lines that an operator would prepare them in the mouth. The main object was to make them of a uniform depth.

I have practically used the electric mallet for thirty years and those who know me well know that I have always been an upholder of that instrument. I do not say that it is the only instrument that can pack gold or produce a good filling. I agree with Dr. Johnson in what he says that if a man can produce the best results with a certain instrument, he had better cling to the instrument that he is accustomed to than deviate from it and take up another instrument that he cannot handle with the same ease and to the best advantage. I am not going to discuss scientific lines nor mechanical lines. You have heard it from the different speakers here. There is one thing I am interested in, however. I heard Dr. Wedelstaedt's remark regarding the efficiency of a lady assistant, and I want to know who it is, his lady assistant or himself who is responsible for the filling. A hypnotic influence must necessarily take place between the lady assistant and himself if the blow is to be struck spontaneously, the same as a mechanical instrument. The electric mallet is rapid and quick in stroke and, therefore, great care should be taken and I think that it can produce the best results with 32, 36 or 48 gold in the ribbon form.

Is the lady assistant striking the sort of blow that the operator desires at all times? Sometimes your patient will indicate it to the operator or to the lady who is striking the blow.

Dr. Maercklein has presented to you a filling of 18. specific gravity, showing absolutely that gold with the electric mallet can be perfectly packed by a good operator. The trouble usually lies with the operator. I think that is true of the hand mallet also, as well as with the mechanical mallet. I have seen the most beautiful fillings made with a hand mallet.

Dr. Maercklein:

I desire to make only a few remarks but I would like to repudiate the statement of Dr. Wedelstaedt that the electric mallet does not weld the gold. In the tooth I showed you the filling remained intact when it was broken off until lately when the tooth split in two pieces and the filling came out. A number of the members of the Society saw it some years ago at Madison. I maintain that gold which is not welded could not have stood the strain. You can weld gold just as perfectly with the electric mallet when it is properly adjusted and handled, as you can with any other instrument. I do not say that you can do it better, but you can do it as well. This filling was in the mouth for more than twelve years.

Dr. Wedelstaedt:

Mr. President, Ladies and Gentlemen: Last year George Ade took the most successful of his plays over to London. They fell perfectly flat and he and his supporters lost all that they had made in this country. When they returned to New York they were one evening sitting in a cafe with a number of other men complaining very bitterly of their loss. Ade made some disparaging remarks regarding an Englishman's ability to see a joke. There was an Englishman present at the table. He said, "You can always tell an Englishman wherever you see him." "Yes," said Ade, "You can tell him, but that is all the good it does you."

Now, Dr. Maercklein is one of the best fellows I know; he is a good deal like myself. He has had so much experience that he bases his ideas and his opinions on it. I do the same thing. Nothing which I could say would in the least influence Dr. Maercklein to change his ideas. If he would take me to his office, make a demonstration and let me see him operate, I might again give the electric mallet a trial, but it would not perhaps be as successful an instrument in my hands as it would be in the hands of one of unquestioned ability in the use of the instrument, like Dr. Maercklein. As one gentleman has just said an acquaintance with the instrument is a very important factor in this matter. I know how difficult it is to make operations in cavities in the human teeth. I know it very well. I know my own shortcomings better than anybody else, but nothing has so far been said that will cause me to change my ideas.

I want to tell you a little story. It is an actual occurrence, by the way. Dr. Searl and I were holding a school in an adjoining city. There were a number of men operating under our supervision. As I walked down the room, I stumbled over something and turned round to find that the cause was a series of dry cells, forming a battery, which were on the floor. I looked at the man at the chair and asked him what he was doing. He said, "I am packing gold and using the only instrument that a sane man should use." I looked at the man and at the large foot plugger he was using. I called my assistant, took a 5-10 millimeter plugger and asked if I might show him something. I took an area of two millimeters in the cavity he was filling and sunk a pit right into the gold. He discontinued using the electric mallet and went to using a hand mallet. I am not saying that I could do this to a filling that Dr. Maercklein is condensing, but on several occasions since then, I have done the same thing.

There is one statement which was made, in the first essay read, that needs some further discussion. The essayist says that one beauty in using the electric mallet is that the plugger may be held some distance away from the gold while it is being used for condensing the different masses of gold which are placed in the cavity. I am unable to bring myself into that condition where this statement can be considered in the light which the essayist desires. We wish blows on the plugger for the purpose of welding, toughening and making the surface of the gold hard, therefore, the plugger point should be held firmly against the mass of gold that is being condensed. I wish to illustrate this: we drive nails in boards. Do we in doing this hold the nail away from the board prior to striking it with the hammer or do we hold the nail firmly against the board? Well, what do we do it for? You all know. The self-same thing applies where we are condensing gold. If the best results are desired the plugger should be held firmly against the gold and not a little distance from it.

I believe that from 10-20 per cent more gold may be condensed in a cavity by holding the plugger firmly against the gold, while condensing it, then can be condensed into the same cavity where the plugger is held some distance away from the gold during the condensation. If, as the gentleman says, that where teeth are sore and tender, the peridental membrane being inflammed, if it were necessary to operate under such conditions, I should adjust a separator and thus hold the tooth firmly in position. I should not care to jeopardize the stability of the operation by not thoroughly condensing the gold.

Dr. Wendel:

Dr. Bonwill said he heard the electric instrument carrying messages and conceived the idea of using an electric instrument for condensing gold.

Dr. Maercklein:

May I add that Dr. Bonwill and Prof. Edw. T. Darby experimented with the instrument for a long time and found that it was generally adapted to condensing gold?

Dr. Wedelstaedt:

There is one thing that I wish to speak of. The question has been asked, "Who is responsible for the filling, the assistant or the operator?" I do not question for a moment that the operator is always responsible. He is the one the patient looks to and not to the assistant. I have merely to imply my wish and my assistant knows what is desired. So closely will your assistant learn your ways and learn to mallet that she will do this instinctively and effectively for she will know from your slightest move what is desired. A nod of the head will bring a blow that is strong; another movement of the head and there is a diminution of the blow. There has been something said about fillings remaining in the teeth. I am never interested in operations which are doing good service. What I am interested in, and what I study all the time and think about morning, noon, and night, are the failures which come to me. The length of time a filling has been in a tooth and has been doing good serivce, I am not interested in in the least.

Dr. Holbrook:

This discussion has been very impressing to me. In my library I have not only the complete *Cosmos,* but the *Dental News Letter* which started before it, and which has been in our family since 1846. This discussion has brought all this to my mind this afternoon. At that time there was no trouble about mallets. I remember how we packed gold at first. Dr. Johnson and Dr. Maercklein and a few here can remember it, and now Dr. Maercklein gets up and tells about the electric mallet. Dr. Webb was a classmate of mine. That the electric mallet should stand from the time that cohesive gold came out, is a tribute to the electric mallet, and Dr. Marshall H. Webb. It is well perhaps to remember that this is all compartively new to some of us.

Dr. C. P. Pruyn, Chicago:

Mr. President, Ladies and Gentlemen, it is a great pleasure to stand up here before the Wisconsin Dental Society. It reminds me of the time when it was customary for twenty-five or thirty Chicago men to come up here and attend these meetings. A few only of the old faces remain. Dr. Holbrook is one of them.

I will make my remarks very short. I wish to refer first to one thing regarding the clinics of today. As a member of the Illinois State Board of Dental Examiners it is my duty to examine members of the profession turned out all over the United States. I find that there is a vast difference in the application of force in the filling of teeth.

Dr. Black:

Mr. President, Ladies and Gentlemen, I scarcely know what to say to you at this time, after you have been sitting here so patiently this afternoon. I know you are all tired. I have been so much interested in the work of re-organization all over the country that I cannot help but get up and try to put a little ginger into your society on this point. You gentlemen in Wisconsin have made a splendid start in this work and I am not going to burden you with any of the details of what we have done in Illinois. I do, however, want to tell you of a few things that we have accomplished in that state, things that have been accomplished in other states and things you can accomplish if you go at this work in the right spirit.

The basis of success in this work of re-organization is good fellowship. You can never accomplish anything in Wisconsin, or in any other state, unless you get together. Petty jealousies must be downed and it should be understood that everyone must give something for the common good. Wisconsin cannot be particularly different from any other state. The whole idea of the re-organization work should be to a common end, and that, the good of all the members. If you have that idea, you will have no trouble in accomplishing anything that you undertake.

You cannot keep in office one group of men for any great length of time. In the Illinois society we do not allow one man to serve two terms in succession on our executive council. (Applause.) One year we elect a president from Chicago and the next year from the state outside. You have to pass these things around. Everyone of the members must give something and they are going to get something back. In some communities where we have established component societies, the prices of dentistry have been doubled, and they haven't been skinning the people either, because they are giving them twice as good dentistry as they were before.

If you get the men together and get them well acquainted, they will understand each other's peculiarities better, and everybody will be a whole lot happier. You will be more apt to stop and think when a patient of a brother dentist comes into your office; you will be more apt to hesitate about criticising the work of the brother dentist. We must realize that everyone makes a good many mistakes and there must be a large spirit of give and take in this whole re-organization proposition if you are going to make a success of it.

Dr. Johnson spoke of the maintenance of interest in such an organization after you get it established. There are many component societies in Illinois that would have gone out of existence long ago if interest had not been maintained by the officers of the state society. You must keep in touch with all of them all the time and whenever you find that a society is a little slow, you have to poke it up. You must do anything and everything that will keep the men interested and keep things going.

I think the greatest thing our society has done is the establishment of a post graduate study course. Incidentally, I might say that since the course has been established, the publishers of one dental journal have taken about six hundred new subscriptions in Illinois. I would like to speak briefly of this study course.

We have taken four dental journals for the past six years and have made a separate card showing the title of each article in these journals for these six years. These cards have then been classified according to subjects. We have taken these cards and have selected some twenty-five subjects to start out with; we have made lists of the articles on these subjects, a committee is appointed to prepare a report on each subject. This committee makes out a list of about twenty-five questions covering the subject assigned to it and a list of the questions is given to each member of the committee. They then read over the articles on the subject assigned and prepare a report showing exactly where in the articles answers may be found to the various questions. This report is then published in our Monthly Bulletin, which is sent to all of our members. We have established about fifty dental libraries in various cities throughout the state, so that most of our members have easy access to the journals used in this course.

The component society decides that it will take up one of the subjects at a particular meeting. The program committee may take out ten of the twenty-five questions and assign them, a single question to a man. Each member to whom a question is assigned is expected to look up the five or six authorities on the question and come in to the meeting and report on them. It is working splendidly; societies are planning a series of these different subjects for the program for the year, and it really means a little serious study for each member of the society. We anticipate that during the next year, out of our 1700 members in the Illinois State Society, we will have not less than three hundred reports written by our members. Whenever the Wisconsin State Dental Society is ready to take up this work, we will be only too glad to give you particulars of all the work we have done up to this time and assist you with it in every possible way. I have no doubt you would find this a valuable help in your work.

In closing, I only want to say that I have been very much interested in the work that has gone on in the state of Wisconsin. You were a good while in getting started, but when you did get started, however, you started right. If you will each give and do a little for the society, you will have one of the finest dental societies in the country. (Applause).

Dr. Holbrook:

I wish to ask a question. It has been a great gratification for me to be present at this meeting.

I would like Dr. Black to state for the members of the society who are here the exact proportion of increase in attendance at the state meeting to the increase in membership in the society.

Dr. Black;

You must not expect to have an increased attendance at your state meeting in proportion to your increased membership. The principle of this work of re-organization is to get the men together in the component societies. There is where they will get the most good. It is the stimulation of the local interest that you desire, and which will in the end be most beneficial to your members, for it is in the local society that each and every member has the opportunity to do something. I should say that the increase of your membership from 300 to 1200 would probably not more than double the attendance at your state society meetings.

Dr. Holbrook:

I like the spirit of the men here at this meeting. You cannot go to many dental meetings without hearing someone knocking somebody else. I have not heard anything of that kind here. To my mind the greatest advance that you have made during the last year is an improvement in the spirit that exists between the dentists of this city and state. (Applause). I think it is apparent to any of the Illinois men who have been here before. All you have to do is to keep working together, and you will make a grand success in the work of re-organization. (Applause).

One other thing which I wish to say is this: that the increase in our membership six times since we started the re-organization work has resulted in an increased attendance at our state society meeting of about three times.

Secretary Jackson:

I want to tell Dr. Johnson that if we do not have more than sixty-eight per cent of the dentists in this state, in our society two years from now, I will be very much surprised.

Dr. C. N. Johnson:

The spirit exhibited by Dr. Jackson is what you want. That is the kind of competition we seek. As I said before, if you get ahead of us you will have to go some.

Dr. Maercklein:

I desire to express at the present time our sincere thanks and appreciation to all outsiders that have come here and contributed to the interest and benefit of this society, and particularly do I desire to express our thanks to the Chicago men. I do this with perhaps more feeling than the bulk of our members can perhaps appreciate. I do not remember a meeting of this society for the last twenty-five years or more that Chicago has not liberally and at all times contributed to the success of our meetings and I do not think that such an opportunity ought to be allowed to go without calling proper attention to that fact. I make a motion that we present our appreciation and thanks to the gentlemen who have so kindly and courteously contributed to the interest and benefit of our present meeting. (Motion unanimously carried).

Dr. Wedelstaedt:

I want to express my gratification and appreciation also. I want to thank you for inviting me down here. Everything has been in good fellowship. I want again to thank you, one and all.

DISCUSSION OF THE PAPER, "REPORT ON ENAMELS," READ BY DR. H. G. MORTON.

Dr. Wendel:

The only thing I desire to call attention to in Dr. Morton's paper relative to Ascher's cement is that all of Ascher cements numbers four, seven and ten, run along the yellow line. If you insert those into the filling with one of the other shades numbered two, three, six, eight or nine of bluish color you will get better results as far as the shade is concerned. That has been my experience.

I am very much interested in the Ascher cements and while I coincide with Dr. Morton in every respect, his is an admirable paper and he has given a great amount of thought and attention and has done a great deal of research work in its preparation—where the Ascher's cements are used in the first place in the tooth, you have one of the most beautiful fillings of any material, and I will not exclude the regular porcelain, but after a certain amount of wear the lustre passes away. You will have that to contend with. In the next place you will have to contend with the proposition that it is a hard brittle filling and if you have any sharp edges, you will probably have fractures at these points.

Do not be misled by thinking that you are going to get a filling that is to displace all your other fillings. Especially, it did not seem to work well in incisal edges. That is my experience.

DR. BABCOCK:

I would like to add a word of appreciation of the paper Dr. Morton has prepared, for I know the difficulty under which he has been working. Some of those from whom he had expected to receive assistance seemed for some reason to be unwilling to give the result of their experience. They said that they had not been using it long enough to arrive at a definite conclusion. I believe in a way that is true. What we want to know, however, is what we have all learned up to date and I am sure Dr. Morton's paper has taken quite a step in determining that point.

DR. ARTHUR HOLBROOK:

Dr. Morton is entitled to an answer to his circular of inquiry and I returned my circular with my notes, which he will acknowledge, but in extenuation of what I may have said in my answer, I wish to say that a few years ago in a state society meeting we had distributed here very freely a certain cement. We dabbled with that, to our dissatisfaction and so, when they ask us for our opinion of a certain thing, we are a little careful about giving it.

SECRETARY JACKSON:

There are very few materials that dentists use that there isn't some good place for them. So, I want to say, for myself, the place where I have found Ascher's enamel to be of more service to me has been in the case of children's teeth. You all know that they come to you from eight up to fifteen years, with pin head cavities in the incisors, where you dislike very much to make radical operations in them, and, furthermore, they are very sensitive—possibly it is their first visit to the dentist and you dislike very much to go through the radical operation for porcelain or gold fillings. In these cases I have found Ascher's cement most serviceable—where the teeth are easily separated and you can get room enough to prepare the cavities with as little destruction of the teeth as possible. I think it is more serviceable to me for that class of cavities than for any other place.

Dr. Christensen:

I would like to add my compliments to Dr. Morton for his full and scientific report. For about the first three years I was very much disappointed, but I made up my mind that I mixed and inserted it too thin. By mixing it and inserting it stiffer, I found that it was more satisfactory. In the cases just mentioned by Dr. Jackson, of children's permanent teeth, I found it very useful. I think there is a good field for it.

Dr. P. B. Wright:

My views coincide so closely with those of Dr. Morton that I find very little argument to offer. I wish to compliment him on his paper more than anything else. My experience with Ascher's cement for the past three years has been very satisfactory. In one particular instance—a young girl—I tried all makes of cement. It would wash out in a few weeks. I have a record of three years with Ascher's cement and the fillings are looking better than before.

I find that in cases where I cannot obtain absolute dryness of the cavity, it is useless absolutely to attempt to put in Ascher's cement, for that is one of the conditions under which it must be placed. Where you can obtain dryness, you can get almost uniform results by using care. At first I used metal instruments but I found that the fillings were turning dark. By confining yourself to bone or agate instruments, you will have no trouble from that cause.

Dr. Brenner:

I wish to make one point for the convenience of those using Ascher's cement and that is along the line of getting the proper shade. You will find the shades are frequently considerably off color. One suggestion that may prove of value to you is to make a mix of each individual bottle that you expect to use and use that as your guide. That will give you something definite to go by.

Dr. Blaisdell:

I do not think I will agree with many here on the use of Ascher's cement in deciduous teeth. Many cases have come to my notice where the pulp in the deciduous teeth has died. I think that more pulps die under Ascher's cement in the deciduous teeth than in the others; perhaps because they cannot be cleansed out as well. I have had so many cases that I feel like discouraging the use of Ascher's cement in deciduous teeth.

DR. HAUSER:

I did not understand Dr. Morton or the others to mention that they use Ascher's cement in deciduous teeth. It should be put in under pressure. I always keep a separate slab for Ascher's, and do not use it for any other cement. For a spatula I use a glass rod with one end ground down in a sort of chisel shape. I do not mix any other cement with it. The material seems to be very sensitive and just as soon as you use any of the liquid or any of the powder, seal it up. When your liquid bottle gets down towards about one-third, throw it away and get a fresh bottle. I have been using it about three years. There are many cases where it is of great benefit to us and to the patient in more ways than one and so far I haven't seen any reason why I should dispense with its use.

DR. STEPHAN:

I wish first of all to compliment Dr. Morton upon his exhaustive paper. While I have nothing to add as to the use of silicate cements, being but a very limited user, and have had very little experience with them, I realize the fact that the time is fast approaching when the dental profession will have to find some material to substitute for gold, for esthetic reasons. The laity is becoming educated more and more to the unesthetic appearance of gold. I believe the time is coming when we must limit the use of gold in the anterior teeth. Porcelain up to now is the only material that served the purpose as a filling material that has as yet come as close to nature as we have been able to make it. I, for my part, would wish for no better substitute than porcelain were it not for the fact that porcelain is too intricate and expensive for the average case. We must reach out further and find some substitute that is less intricate and less expensive to be of the greatest good.

I would suggest that the Society appoint Dr. Morton as a committee of one to investigate and report at the next meeting of the Society on silicate cements. I should be very much pleased to have the Society take some action and I will make this in the form of a motion. (Motion unanimously carried.)

DR. H. G. MORTON:

I want to thank you all, but I would like to decline the honor bestowed upon me, for I have had my hands full for two months.

I should like to have someone else have the pleasure and honor of it. However, anything that I can do I will do.

In using this material you have to exercise your own judgment to a great extent. It is very sensitive and you can get very fair results if you are extremely particular.

I had one patient whom I wanted to bring here today—she backed out at the last moment. She is a young girl, about sixteen years of age, with very sensitive teeth. It was only after a great deal of hard work that I managed to get a couple of fillings in the central incisors, and as a last resource I used Ascher's cement. That was about two years ago last May. In that case the cement shows up far superior to the enamel. The enamels have somewhat changed, I believe, or the teeth have changed, with the addition of a dark brown line at the union of the cement and the enamel. The Ascher's has, however, blended into the two structures and it looks better today than it did the day I inserted it.

REPORT OF CLINICS.

BY DR. A. J. DU BOIS.

Clinic No. 2—Gold inlay, Dr. J. J. Wright of Milwaukee. Pack annealed moss fibre gold into cavity; no matrix used, remove coat and back with whiting; solder. A quick and accurate process.

Clinic No. 3—Dr. P. B. Wright, Milwaukee. Cast gold inlay. An impression of cavity was taken with wax; model of artificial stone; inlay cast and finished in stone model. Artificial stone can also be used in making models of teeth and roots in crown and bridge work. Porcelain inlays can also be baked in artificial stone.

Clinic No. 4.—Dr. A. A. Jennings, Milwaukee; cast gold inlay; proximal cavity in an upper central incisor, involving incisal angle; showing different steps in cavity preparation, forming wax investment, and casting with gold.

Clinic No. 5—Dr. A. C. Searl, Owatonna, Minnesota. Gold filling; hand mallet; showing Black's method of cavity preparation. A scientific method of packing and condensing gold.

Clinic No. 7—Dr. O. A. Strauss, Milwaukee; amputation of root; upper right first biscuspid; slight necrosis in process; curetted process; local anesthetic used.

Clinic No. 8—Dr. Carl B. Case, Milwaukee. Casts of the face. Demonstrating fact how record of case can be obtained before and after regulating teeth; the finished heads show how far impressions can be carried.

Clinic No. 9—Dr. H. G. Morton, Milwaukee. Plastic porcelain stopping; right upper central incisor; using celluloid matrices and bone instruments.

Clinic No. 10—Dr. James Sorenson, Fond du Lac. Hygienic crowns, bridgework and cast bar plates.

Clinic No. 11—Dr. F. E. Raiche, Marinette, Wisconsin; showing Morgan attachments in upper and lower plates. Upper plate cast with clasp metal in three pieces and soldered together.

Dr. S. C. Marlow, Lancaster, Wisconsin; anatomical articulation; showing bite gauge to correctly locate models on articulation, and to be able to establish the condyle path.

Clinic No. 13—Dr. Reno Weiss, Milwaukee; models in orthodontia.

Dr. R. J. Walker. Double fracture of mandible. Fracture of sup. maxillary bones included. Nasal bone. Lower compound fracture a little right of median line; also at left angle. Wire brace and bands used and entire head bandaged with plaster. Occlusion on right side very successful; on left nearly so.

Dr. E. K. Wedelstaedt, St. Paul, Minnesota. Novel and humane method of applying rubber dam and ligatures with different features. Showing value of modeling compound in assisting to make things more convenient.

NORTHERN ILLINOIS DENTAL SOCIETY, OCTOBER, 1909.

DISCUSSION OF DR. C. B. MEAD'S PAPER ON "THE RELATION OF ADEQUATE REMUNERATION TO IDEAL DENTISTRY."

Dr. M. R. Harned, Rockford:

This excellent paper of Dr. Mead's raises an important question to all of us, and one fraught with many phases of business and ideals.

I have great respect for the man who can approach the subject of fees, from a purely business standpoint as Dr. Mead can, and make the patient feel that it is a pleasure and privilege to have him perform the professional service desired, and also feel that he has his money's worth.

I also have great admiration for the man who can perform ideal dental operations, and convince the patient of their value and collect a fee accordingly, but not being an ideal business man, nor an ideal dentist, I find some difficulty in approaching the matter from either of these standpoints.

For me there is a sort of alchemy in the situation and the great solvent is the psychological relation between patient and operator. To begin with, the ideal would vary with the patient. With one it would be freedom from pain, with another it would be dispatch; with another, mechanical perfection, and another, little beside shine and glitter, while others would demand inconspicuousness; some would demand beauty, and others a natural restoration. Probably the usual basis of remuneration is in proportion to the operator's ability to fill the patient's ideal and not his own.

The man who has the ability to impart to the patient his ideal, then fill the requirements of that ideal, is the great master of the situation, and must be able to command the confidence through other mean than simply perfection of operation, for no man is perfect in this, in all cases.

In fact the ideal operation for one patient in certain conditions might be cement or gutta percha fillings, or cautery, but this would not suffice as an ideal for all patients, and neither will the perfectly condensed "extended for prevention" gold filling.

It is my belief that the ideal service does not consist necessarily in ideal dentistry, but lies in the power of the operator to forget self and remuneration, intent only upon rendering the most helpful and loving service, and the compensation will be easily adjusted.

REPORT OF SUPERVISOR OF CLINICS.

BY DR. LESTER F. BRYANT, CHICAGO.

Dr. Truman W. Brophy, Chicago—Surgical Clinic.—The patient brought to me at the Sherman Hospital, I found had a cleft palate involving the soft and about half of the hard palate. This patient also had hypertrophied tonsils which were so large that it was absolutely necessary to remove them prior to the operation on the palate. There were also adenoid growths in the pharynx to be removed. It is customary to first remove the tonsils and the adenoid growths allowing several weeks to pass, during which time the surfaces become healed. Having the pharynx in a normal condition, the palate may then be operated upon. In this case, however, I not only removed the tonsils and the adenoid growths, but operated on the palate also, performing the usual operation of having the edges of the palate in contact and holding them with sutures and lead plates.

Dr. Elliott R. Carpenter, Chicago.—Chair Clinic—Cohesive gold filling; marginal cavity; inserted a cohesive gold filling in an upper cuspid, cervical cavity. The cervical clamp was cleverly adjusted and the clinician showed himself to be a skillful manipulator of cohesive foil.

Dr. Austen F. James, Chicago.—Chair Clinic.—A case requiring pyorrhea and prophylaxis treatment. Demonstrated the Carr instrument for the treatment of pyorrhea and oral prophylaxis. The doctor showed how they facilitate operating in obscure pockets. He also showed their application to prophylaxis, planning the etched cervical margins.

Dr. Louis E. Bake, Chicago.—Chair Clinic.—Porcelain filling. Inserted a corner restoration of porcelain in an upper lateral. The cavity was prepared showing good mechanical retentive form.

The versatile way in which the doctor handled the porcelain and applied the colors, was most instructing to all who witnessed this clinic.

Dr. Rudolph Beck, Chicago.—Chair Clinic.—Bismuth paste in treatment of the sinuses of the jaws. Injected bismuth paste in a case of empyema of the antrum also demonstrated the use of the paste for the cure of chronic alveolar abscesses and sinuses of the jaws.

Dr. F. B. Moorehead, Chicago.—Chair Clinic.—Deep injection of alcohol in treatment of facial neuralgia. The committee was unable to procure a patient.

Dr. C. L. Snyder, Freeport.—Chair Clinic.—Asher's Enamel Filling. Inserted an Asher's Enamel Filling, a very pleasing result was obtained.

Dr. R. P. Culver, DeKalb.—Chair Clinic.—Anterior detachable crown by the cast method. Came prepared to make this clinic, but on examining the patient, found that the tooth had not been treated.

Dr. E. A. Royce, Chicago.—Table Clinic.—Shading of porcelain teeth to harmonize with the natural teeth. Demonstrated the shading of porcelain teeth to harmonize with the natural teeth, using the Lenox colors. This was a very instructive, beautiful clinic and showed how adaptable the colors are to our work.

Dr. J. L. Palmer, Rockford.—Chair Clinic.—Asher's Enamel Filling. The committee was unable to procure a patient.

Dr. A. E. Schneider, Chicago.—Table Clinic.—The Porcelain jacket crown. Demonstrating its technique strength. This clinic was for the purpose of demonstrating the improvements made recently in the handling of porcelain, showing how by the manipulation you gain better control of shrinkage, much greater strength and the ability to complete your crown in one bake. The technique of this work was demonstrated by the building of a tooth entire, after which the tooth was cemented to place upon a specially prepared spike and driven through the hardest oak siding, with a hammer. This great strength and the beautiful fit at the union of tooth and crown demonstrate the superiority of this crown over any other used in dentistry today.

Dr. Victor Fuqua, Chicago.—Table Clinic.—Pyorrhea splint. This was a most ingenious appliance for the retention of loose teeth. It was made in two pieces, of a cast gold, a labial and lingual plate. Platinum wires were soldered to the lingual plate to project labially between the teeth, holes were drilled through the labial plate to engage these pins, which were threaded. The two pieces were then screwed together with nuts, such as come with the Bryant repair outfit.

Dr. A. E. Matteson, Chicago—Chair and Table Clinic—Something in Porcelain.—"Porcelain Jacket Crown." The root is prepared in the usual manner without devitalizing the pulp and a platinum matrix formed covering the end and solder at the gingival margin. A porcelain crown, preferably a "Gates-Bonwill," is selected to conform to shape and shade. The recess for the end of the root is formed by grinding with thin carborundum disk a slot through the lingual surface of the crown and enlarging this recess through the slot until it will permit the crown to pass freely over the platinum matrix in correct alignment and position. Through the slot sufficient porcelain —I prefer S. S. W. H. F. foundation porcelain—is packed between the matrix and the skeleton crown to "tack" it in position and then baked to a biscuit, the packing of the F. porcelain is continued to full contour and again baked to a glaze.

Dr. H. E. Barber, Chicago.—Table Clinic—A simple Abutment for Lower Incisor Bridge Work.—We will take for example a case where the two lower incisors are lost, the laterals loose but too good to extract. With knife edge stone or disc bevel from lingual to labial and incisal to gingival, then grind away lingual enamel plate or a part of it down to about gingival third of tooth, leaving a shoulder on which to seat your casting. The inlay wax may be adapted directly to teeth or made from models as desired. I work from models because I think it more accurate. After casting, cleaning and polishing, slip to place and secure bite and impression. The case can now be completed by casting or soldering as desired.

Dr. F. K. Beam, Chicago.—Chair Clinic—Dental Radiographs.—Dr. Ream made a number of dental radiographs using a portable coil and alternating current. Also demonstrated the use of violet ray, high frequency current in neuralgic conditions, counter-irritation, etc.

Dr. J. C. Hathan, Crete.—Table Clinic—Showing Some Important Points in Cavity Preparation for Amalgam Fillings.

Dr. A. B. Allen, Chicago.—Table Clinic—Showing Models of Impacted Third Molars and the Technique for Their Extraction.—Illustrating from natural teeth and models methods by which difficult cases in extraction are removed. Also the procedure and necessity of careful preparation to release the tooth by cutting the alveola around the tooth, both distally and buccally, in cases of lower impacted third molars. This gives the tooth more freedom of removal in a distal direction, and we are less liable to disturb the second molar on account of contact.

Dr. O. A. Campbell, Elgin.—Demonstrated the satisfaction and time saving to the operator as well as the maximum comfort to the patient, attendant upon the use of knife edge carborundum disks in preparing lower molars. With stone kept wet cut sulci and grooves mesio-distally and bucco-lingually to required depth—finish by using inverted cone burs Nos. 34 to 37. Also showed Dr. Galloway's Mechanical Dam, its use and application in holding cotton rolls to place while filling lower molars.

Dr. H. V. Methven, Chicago.—Table Clinic—Three Point Contact.—Demonstrated the principle of three point contact, showing the method of taking the bite, mounting it on the articulating frame and finding the path of the condyle. This clinic was beautifully gotten up with elaborate models.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

"THE INTERNATIONAL MEMORIAL TO WILLOUGHBY D. MILLER."

In the March issue of the *Dental Cosmos* Dr. E. C. Kirk, the editor, publishes an article which should be read by every American dentist. In it he calls attention to the deplorable fact that in the subscriptions to the Miller memorial fund it is found that the United States stands much below other countries in the amount already raised for this purpose. This we believe to be due not to any real apathy on the part of American dentists, nor to a lack of appreciation of Miller and his work, nor to any opposition to the plans of the committee regarding the purposes to which the fund is to be placed. We think it is solely a matter of carelessness or thoughtlessness. The importance of this matter as it relates to sustaining a very worthy object and one which may be made a permanent benefit to dentistry, as well as to our national and patriotic pride has never occurred to most of the men practicing in this country. Miller was an American, born and reared on American soil, and he came back to America to spend his last days. What more fitting than that the profession of his native land should rally to the support of any movement tending to perpetuate his name and fame, and at the same time confer a definite good on the future of the profession. The American dentist is not niggardly in his nature. He subscribes liberally to all worthy objects when his attention is called to it, and in this instance we feel sure that the American fund will promptly be raised to a respectable proportion when the word is sent out that it is at present below two thousand dollars. It ought to be at least five thousand. Let every man who reads this, and who has not already subscribed to the fund sit right down and add to the contribution to the best of his ability. Whether his subscription be large or small let him at least show his appreciation and emphasize his patriotism by sending something. The chairman of the American committee is Dr. Truman W. Brophy, 6 Madison street, Chicago, Ill., and he will be glad to receive and acknowledge all contributions.

THE EDITOR'S DESK.

AN AUTOMOBILE TRIP THROUGH EUROPE.

BY DR. FRED W. GETHRO.

[Continued from our March number.]

After spending a few days at Menaggio on Lake Como, we continued south on the west bank of the lake to complete the tour of Lake Como. Last summer one could not proceed south of Cadenabbia because the road from Cadenabbia to Argegno is still under construction and it will probably be two years before this part of the roadway is finished. This need cause little inconvenience, because the freight boats are available for machines and passengers. The only troublesome thing is that their methods of loading and unloading are so abbreviated that it taxes the skill of a driver to safely negotiate the narrow skids placed between the boat and the landing. And it does not add much to his comfort to know that the water at the pier is some times fifty feet deep. However, we boarded safely and left the boat about an hour later at Argegno, a distance of about fifteen miles from Cadenabbia.

The west side of Lake Como is wonderfully attractive but it is not as beautiful as the east shore. We reached Cernobbio about noon and had lunch at the Hotel Villa d Este, a large and attractive hotel.

A few miles beyond we reached the city of Como, having encircled the lake. We did not enter the city this time but turned northwest towards Lake Lugano. Lake Lugano is between Lake Como and Lake Maggiore and is the smallest of the three lakes, being about twelve miles long and one mile wide.

A few miles from Como we came to the Italian frontier and presented our Italian triptyque to the custom official, telling him we would not return to Italy. The triptyques are made in three parts. The first part is torn off when one enters the country and on the second part is placed the various endorsements made every time one enters or leaves the country. When leaving the country for the last time the official tears off the second part and officially stamps and returns the first part. This officially stamped first part is necessary to present to the Touring Club when the deposit is returned. It is not necessary to present this in person. One can send it by mail and have the money forwarded.

At Chiaso we had our Swiss triptyque endorsed and continued northwest until we arrived at Lake Lugano, then followed north on the east shore until we reached the causeway, a road built across the middle of the lake. After reaching the west shore we continued north to the city of Lugano, which is charmingly situated on the north shore of the lake. We did not linger at Lugano for we had a longing desire to reach the St. Gothard Pass.

ST. GOTHARD PASS. A WONDERFUL PIECE OF ENGINEERING.

With the beautiful scenery of the Simplon Pass fresh in our memories we were anxious to compare it with the St. Gothard Pass. The St. Gothard Pass is open to automobiles every day from five to eight in the morning and from seven to nine in the evening.

This is the published information and it is the information one always get when making inquiry. This would appear to limit the time to very unreasonable hours, but after learning the modifications one soon discovers that the regulations are extremely moderate. For instance, only a part of the pass—from Hospenthal to Andermatt, a distance of less than four miles—is under these restrictions. One can drive over all other parts of the pass (the pass is about twenty-five miles long), at all times of day or night. In addition one can drive over the restricted part at any time by having a horse attached to the front of the machine. The horse and driver must be obtained from the officials, for which a fee of about $5.00 is charged. Of course the machine proceeds under its own power but this procedure insures a slow rate of speed and the attached horse is supposed to prevent other horses becoming scared at the machine. As in the regulations of the Simplon Pass it is always necessary to have a permit to go over this restricted portion.

THE FURKA PASS.

We arrived at Hospenthal, the beginning of the restricted territory, and had lunch at the Meyerhof—a very inviting hotel. Beyond this we could not go until seven in the evening (excepting with a horse attached), but as we did not care to continue until we could make some side trips, this restriction caused us no inconvenience.

From Hospenthal one can make the Furka Pass, the Rhone Glacier and the Grimsell Pass, all of which are within a reasonable driving distance. As automobiles are absolutely forbidden on all of these passes we took a carriage and three faithful "dobbins."

While the Furka Pass is not as beautiful as the Simplon Pass nor as wild as the St. Gothard it is well worth while and one gets some wonderfully striking views from the top of the pass. On the summit of this pass (7,992 feet), is located a hotel which is one of the most elevated habitations in all Europe. We were here in the middle of summer but furs were necessary for comfort. During the winter the snow drifts along the side of the road are sometimes forty feet high and frequently they remain all summer.

THE GRIMSELL PASS.

The photographs shown of the St. Gothard, Furka and Grimsel Passes are somewhat misleading because they can only be taken by pointing the camera downward. In doing this some of the roads are necessarily distorted and of course the grades are not correctly shown. The roads on most of these passes maintain the same even grade throughout the pass.

A mile or two beyond is the Rhone Glacier so well known to all tourists. In this mammoth bulk of ice, miles long and a half mile deep, ice grottos have been made. These are made large enough to accommodate a number of people and for a very small fee one can enter. The various shades of light green and blue seen from the inside, especially when the sun is shining, are truly beautiful.

A STRIKING VIEW ON THE BEAUTIFUL SIMPLON PASS.

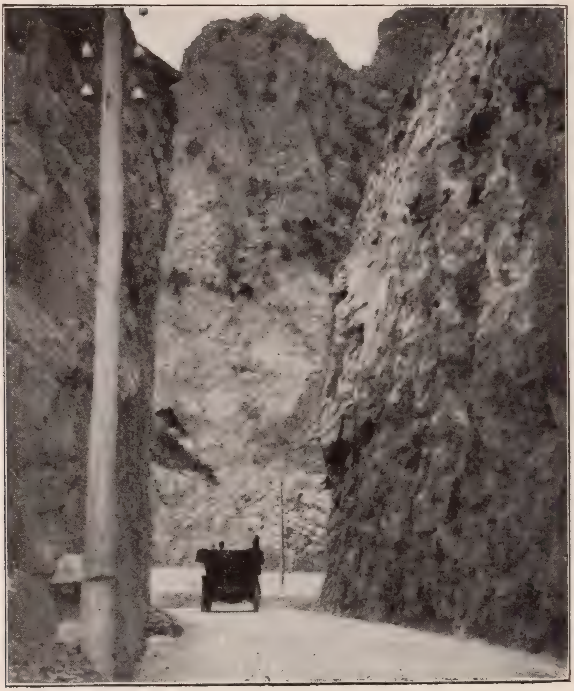
We returned to Hospenthal for the night and the next morning bright and early we had the customary European breakfast which always consists of coffee, hot milk, rolls and butter. If you like honey do not fail to order Swiss honey. Nothing in meats or eggs can be obtained unless specially ordered the night before and even then, will undoubtedly cause delay. Although the distance to Andermatt was only a few miles, and we did not have to complete this part until eight o'clock, we had planned on having sufficient time to view the beautiful places, for the Devil's Bridge and the grand rocky scenes of the Reuss river were all ahead of us. But we were doomed to disappointment for it had been raining all night and we left Hospenthal in a thick fog. Fogs in the mountains are so uncertain that we did not care to wait until the next day with the possibility of the same condition.

Every town in Switzerland has its own laws regulating the speed of automobiles, and we found their speed limit regulation to average about six miles an hour. In some towns it was as low as four kilometers, or a little more than two miles an hour. Of course, this speed limit is absurd and practically impossible. These speed regulations and the amount of the fines imposed are posted on the border of each town. The fines are ridiculously low, being as low as two francs or forty cents. One might almost wish to be arrested and have the experience of a forty cent fine. However, if an automobilist will drive with judgment he will not meet with any unpleasantness for the authorities are extremely liberal.

COMING OUT OF A TUNNEL ON THE SIMPLON PASS.

Motor car touring in all parts of Switzerland is attractive but the various passes seem to offer the acme of the joys of touring. There is something so exhilarating in climbing over these mountains. Every turn brings some new scenery in view, and the charm of it all has to be experienced to be appreciated.

The next turn may disclose a small hamlet away up on the side of some distant mountain or possibly an isolated chalet perched high on some prominent spot, and we would wonder how in the world they ever got up there and then we would guess how they ever got down. This continued panoramic view obtained from an open touring car is one of the fascinating features of a motor car trip.



A WONDERFUL ROAD—SOUTHERN FRANCE.

Nor can one fail to have some appreciation for the modern high-grade automobile that carries him safely over these formidable mountains. The regular throb and the constant purring of the motor, the seeming willingness to overcome all obstacles, in fact, the responsiveness to every demand almost makes one feel like the motor has real life.

Open touring cars with a cape top are almost unknown in some parts of Europe. Some few are demi-limousines having stationary tops, but practically everything else including all rented cars are limousines. The average European tours in a limousine with all windows closed. His view is not much better than that obtained from a car window.

(To be continued.)

BOOK REVIEWS.

DENTAL DIRECTORY OF ILLINOIS. Published for the Illinois State Dental Society by a special committee appointed for this purpose, consisting of Dr. Arthur D. Black, chairman; Dr. Fred W. Gethro and Dr. R. W. Hood. Price, $2.00.

The lists in this directory are published in three arrangements: List I is an alphabetical list of all cities and towns, with the dentists in each arranged in alphabetical order. List II is arranged in accordance with the territory within the jurisdiction of each component society of the Illinois State Dental Society. List III is an alphabetical list of all dentists in the state with page numbers after each name, indicating where the name may be found in lists I and II. The work is a very valuable one and the committee deserves great credit for bringing it out.

THE CANADIAN DENTAL DIRECTORY, compiled from official sources. Price, $1.00. Published by *The Dominion Dental Journal,* 3 College street, Toronto, Canada.

This is the first attempt at publishing a dental directory in Canada and the time is surely ripe for it. The book contains much valuable information, aside from the names and addresses of dentists. It gives a list of dental societies in Canada, a list of colleges, dental manufacturers, dental laboratories and dental supply houses; also the various provincial dental acts.

It contains the regulations of the Dominion dental council, and the book is of great interest to every practitioner and student in the Dominion.

CORRESPONDENCE.

LETTER FROM DR. NEWKIRK.

Pasadena, Cal., March 10, 1910.

My Dear Editor:

I feel grateful through and through, more than I can begin to express, to those who conceived and carried through the G. V. Black banquet. I am thankful to all who had part in the speaking, and to the noble company of those who listened and applauded. And I am thankful to you, dear Editor, for your wise thought in giving nearly a complete issue of the DENTAL REVIEW to a full report of the occasion, and the summary of Dr. Black's life and work. Though I could not be there, I am glad for the privilege given to others, and for this record. In blessing Dr. Black the profession has immeasurably blessed itself.

It has long seemed to me that the dental world had no other to compare with him for all-around, symmetrical greatness—as a man of science with a fine poetic vein; as a practical inventor and master of operative minutiæ; as a writer, as a speaker, as a family man, as a citizen, as a man purely religious without cant or ostentation, and withal a genial friend.

I shall never forget one night at Rock Island, when, after an evening meeting of the State Society I sat out with him in the park, before the hotel, till midnight, listening to his tales of Indian lore, and dream stories of his own that I am sure have never been published, probably remain till now unwritten.

As we rose to go in, he said, "Well, we fellows who have been associated so many years, summered and wintered together, we understand each other pretty well, don't we?"

Thank you for the most excellent picture at page 250-1.

Bless his dear, old young heart.

GARRETT NEWKIRK.

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LETTER FROM DR. KABELL.

TO THE EDITOR:

I wish to submit proofs of the unreliability of the facts published by C. R. Baker, D. D. S., under the title, "Some Experiments to

Determine the Physical Properties of Cast Gold," in the February number of THE DENTAL REVIEW.

If ever it were possible for the molecules of gold to run riot, it must so have happened during the experiments, the results of which are published in the above named article.

Physical science has heretofore taken it as a fact, that the specific gravity of freshly melted gold is a constant of 19.33, which by hammering and drawing could be increased to 19.65 specific gravity. Any attempt to condense after attaining this gravity would result in fracture of the gold.

To see now published the result of an experiment, that claims to show the specific gravity of cast gold to be 21.15, is truly miraculous and worthy of the united attempts of scientific investigators to solve this riddle.

Still more miraculous are the results in thirteen out of twenty-eight castings, which show a specific gravity much less than the inherent gravity of gold.

That gold in a pure state and of the specific gravity of 19.33 should after melting and the addition of pressure lose some of its density (in one case 17.703), amounting to more than 1/12 its weight, is simply impossible to believe and can only be explained by air bubbles formed in the interior of the respective cubes.

Granting the pressure of such air bubbles would put a somewhat doubtful value on the cast fillings and necessarily proclaim the specific gravity findings as worthless. Six casts show a specific gravity almost similar to that of pure gold.

The remaining nine casts vary in specific gravity (according to the tables published) from 19.83 to 21.15 and stand unsupported by any logical and scientific means known today.

To establish a fact it is necessary to examine all sources of possible error and prove, after removing all doubts as to mistakes in manipulation, by repeated experiments the correctness of the assertion.

The first question will be: By what manipulations and way of reasoning were the specific gravities found?

Not knowing the particulars, we will assume that the whole casts, cube, sprue and surplus button weighing five, respectively three pennyweights, were sent for examination.

To find the correct specific gravity of a piece of gold weighing five pennyweights calls for extraordinarily exact instruments.

The mistake of one-half grain too much of water displacement figured, would result in a specific gravity finding of 17.89, while we get the figures 21.20 when the assumed weight of water displaced is short one-half grain its actual weight.

To illustrate:

5 dwt. = 120 gr. will displace $\frac{120}{19.33}$ gr. of water = 6,208 gr.
Adding ½ gr. to 6,208 gr. = 6,708 gr.
6,708 : 120 gr. = 17,889 specific gravity.
Subtracting ½ gr. from 6,208 = 5,708
5,708 : 120 = 21.202 specific gravity.

With three pennyweight pieces it needs only a mistake of 3/10 grain either way to get the same figures. We have reason to suspect that Dr. Baker did only send the cubes after removing sprue and surplus.

These cubes, by a close guess, could not have weighed more than 1¼ pennyweight for different reasons well known to cast workers. One-eighth of a grain would have turned here the trick mentioned above.

It could of course be possible that the State University is in possession of instruments which accurately measure a weight of 3/800 of a grain or when only the cubes were sent of 1/640 of a grain, as the figures claim, but while I know of the existence of such scales, which by levers and microscopical readings will attain such exactness, I will wager my reputation that such instruments were not employed, and the correctness of the given specific gravities is absolutely nil.

I will here not express any doubts of the scientific training and resourcefulness of the physical laboratory investigators, who logically should have been as much surprised by the results found as I.

Then it goes without saying that they were surely under the impression, that the cubes sent were in reality composed of different alloys, the varying percentage and composition being responsible for the variation in the specific gravities.

This settles the specific gravities to my belief and knowledge, but the article contains more extraordinary claims. It claims to prove that by exact measurements the average size of cubes cast in hot molds is 2/1000 inch greater than the size of those cast in cold molds.

The array of figures given to prove the assertions is elaborately confusing.

The average of the wax cube was 0.1995. This is not a great help, if the actual diameters of all the twenty-eight cubes are not obtainable, and they could not have been alike because the article especially says "average of the wax cubes." Is it then not possible that the cast showing 0.2036 inch was made from a wax cube of 0.2010 inch diameter?

Is it not possible that the average of the wax cubes in the hot mold test were actually 0.2005 and the average of the cold mold tests only 0.1985 and would it then not change the findings from 18/10000 in favor of cold casting to 2/10000 in favor of the opposite?

But let us assume for argument's sake that the size of the wax cubes was in all cases 0.1995 inch in diameter.

Table 4, first cast, has shrunk 0.035 of an inch, although it was cast in a hot mold.

Table 6, third cast, even shrank 0.041 inch after casting in hot mold.

In opposition to this compare the figures in Tables 2, cast 2, and Tables 5, cast 4.

The casting in cold molds resulted in an expansion of 0.006 and 0.009 respectively.

Where is here the proof that the casting in cold molds makes the fillings smaller and vice versa?

If the discrepancy of the figures is explained that some molds were not cold enough and in the other case not well enough heated, what right is there to use the results in spite of these irregularities as valid for the calculation of an average? The more one studies the tables, the greater is the difficulty to come to any conclusions, the more impossible it becomes to make any deductions which could help us to an understanding of the laws of contraction and expansion in casting.

Mechanical difficulties play a very important part in this phase of investigation.

How were the wax cubes made? Were they turned off in a micrometer lathe to get a true circle shape and why were they not made 0.2 of an inch instead of the somewhat unwieldy 0.1995? Was it by accident? Accidents impair scientific accuracy.

Were the cast gold cubes thoroughly cleaned of all tenaciously adhering investment compound, and what precautions were taken to prevent the removal of a little of the gold surface during the process of scouring?

Furthermore, did none of the twenty-eight molds show any cracks after heating and was the gold allowed to cool gradually or quickly chilled? All these factors can change the micrometer findings a couple of 1/1000 inches.

None of these possible errors were considered according to the article and when one recollects the possible variations in the mixing of the different investment compounds with their varying results and suspects some unforseen difficulties, which challenge the exactness of such investigations, it is small wonder that our attempts in this direction will prove exasperatingly futile.

It lies hardly in the power of one man to conquer all difficulties and with the help of scientifically exact apparatus for mixing, heating and casting, to make an immense number of test casts in order to find the exact physical laws governing the process of pressure casting.

I beg Dr. Baker's indulgence for the liberty of criticising his article and to excuse my aggressiveness, for he will remember that professional courtesy has little to do with the search for truth and scientific exactness. C. KABELL.

NEW YORK LETTER.

My Dear Mr. Editor:

For quite some time past there has been much comment and complaint about the unusual number of dental societies acting independently, struggling at cross purposes, the ruling powers of each more or less antagonistic to the others, here in this great metropolitan centre. In the borough of Manhattan alone there are five very active societies, meeting regularly each month and a few others which have existence which meet at irregular periods.

The active bodies are the First District Dental Society, the Odontological, the oldest of them all, the Study Club, the Institute of Dental Technique and the Institute of Stomatology.

Beyond a doubt factional disturbances have been the cause of the organization of some of these societies, but the history of organizations in New York is peculiar and lengthy and cannot be dwelt upon here.

But within the last year or so there has been a feeling of more amicable relationship between the older members of the profession. Dr. W. W. Walker seems to be one of the prime movers in sowing the seed and recently he and others seemed to feel that the psychological period had arrived for calling together the clans and suggesting that some means be devised to collect much of the diffused energy, concentrate it into one centre, and then we could be the biggest and greatest thing that ever happened.

Between us, I think some in the East are impressed with the conviction that you men of the middle country have grown so much bigger—yes, I mean it, in many ways—than we, that an awakening has taken place.

The First District Dental Society issued a call to attend the meeting at the regular place—Academy of Medicine, on March 8, 1910. The subject to be discussed by members of the dental profession was "What Shall be the Future of Dental Societies in Our City."

No man's name was subscribed as the author of the movement, but one of the gentlemen was called upon to present the subject for which the meeting was called. An essay was brought forth. It was the maiden effort of that gentleman before this society or any other society, but it turned out to be one of the most masterly documents the society has ever had presented. Dr. W. W. Walker is the essayist referred to. He has been an indefatigable worker for the dental profession for more than a quarter of a century. Everyone who knows him, whether he has been in accord with his views or not, honors him for his many accomplishments, his honesty and steadfastness of purpose, in appreciation of which it has been spoken of in many places—that he, the general of the several dinner functions to worthy recipients in the past, should be the next honored guest.

Dr. Walker's paper dealt with the professional situation as he sees it in our city, the men as he views them working singly or in groups. He talked about the general unrest that exists and dissatisfaction and the two dental colleges that can be improved. "It is a common remark that New York is no longer the centre of dental advancement."

He referred to the loss of dignity and also the degenerated condition of our state society, and concluded by showing that our scattered efforts cannot accomplish the best we should be capable of and that an entire reorganization of the dental societies is not impossible.

Dr. S. G. Perry was called up to express his sentiments. He said that it was not easy to discuss this situation of dental societies without discussing Dr. Walker, his personality is so expressed in it. He has watched the unfolding of a strong, fine nature. As to our societies—they reminded him of children who are prone to work separately. Men work together. After recounting the dental society situation, he remarked that "A condition confronts us. We must reorganize to work with minds and hearts for success of organized effort."

Our societies are post graduate institutions, the function of which is to uplift dentistry. The object of all societies is to teach in a better way.

Dr. Perry spoke as did Dr. Walker in his remarks about the classes in crown and bridge work and orthodontia that have been going on all winter. He said that they opened up a usefulness never before thought possible, but they had to be supported by individual subscription.

In referring to the advantages that would accrue in the event of consolidation of society interests, he said what better use can a large income be put to than to make all sections free to all its members? These post graduate schools could in no way interfere with any college. Many men are eager for advanced study. As to the dental colleges he knew that they had all done good but that they were now on the threshold of doing better. He felt that their connection with some university would be of great benefit and not only desirable but inevitable. New York, the imperial city, should no longer lag. We should have a greater sense of loyalty and greater trust in each other.

Dr. Wm. Jarvie spoke very complimentary of Dr. Walker and his advice to him when he met him many years ago as a candidate before the state board of dental examiners for the degree of M. D. S. No man works harder than Dr. Walker. The question of organization comes properly from him. We want an Academy of Dentistry and the various societies should be sections. We are not disorganized, but unorganized. We need one society and this is the time for it. We need a dental home, as medicine has—we haven't a library—except that tucked away in this medical society building where nobody can get at it, or find what he wants. Some gentlemen may think that they will be giving up something to consolidate but they would be giving up something quite small for something greater. Dr. Walker has used two phases worthy of special mention: "Organized effort," and "harmonized activity." In conclusion Dr. Jarvie suggested the appointment of a committee to present a scheme for unification and organization.

Dr. Chas. A. Meeker felt that the lack of proper organization was the keynote of the New York situation. In New York we have not enough of the ethical practitioners as members of our societies. In Jersey they have 60 per cent of all those who are registered. There was an idea of a dental club broached in New York years ago, but that fell through. Drs. Bödecker, Heitzmann and others had subscribed money to it.

Dr. Meeker believed that the public should be kept informed on dental progress by proper use of the press. The medical profession has no such false modesty as we seem to have.

If you organize your interests the men of New Jersey can be counted on to help in every way possible.

Dr. Ottolengui said that he would like to bid for the future literary output of the essayist of the evening.

As to the society situation, nothing can be said about the desirability. We are one city, one profession, why not one society? These many societies engender disloyalty. There should be fraternity. We should work to get the best and present it in the best way to the largest number. We can get men to travel much further with a better paper if we can promise a larger audience. Dr. Ottolengui cited his first visit to Chicago when everything seemed to be harmony there—everyone was talking it. Finally they did get it. This, the First District, was the local society of the United States when I came into it. It has a long row to travel to get back again. In reorganizing, it should be known as the First District Society, but we must guarantee membership in the state society.

Dr. Ottolengui said he hoped the Walker paper will be the seed for reorganizing the state society and bloom out into better national association.

Dr. J. Morgan Howe complimented Dr. Walker on the presentation of a well and enticingly presented paper. He did not believe it necessary to efface the other societies to accomplish the work. Enlarged membership and income would make for a great deal to be done in this city.

Dr. Gillett said that he had learned very much from his attendance upon First District Society meetings when he first came into the profession. He had to travel from Newport then, and did so quite regularly.

We might as well face the fact, though—we have been falling behind in the race.

It keeps us constantly occupied in attending the several society meetings each month; I hope we may, in some way, unite. Let us be loyal to the profession as a whole. Let us get together and work for it.

Dr. S. E. Davenport felt that Dr. Walker had presented the subject in a most satisfactory way, and advised the taking of such steps as will lead to union as one large company. It is lamentable that New York should have had so small a representation.

Dr. Stanton said that it was a most wonderful evening, because of the harmony of interests.

"I maintain that this is the most perfect dental organization in the world if you eliminate politics. If you allow the same condition to exist it will always be the same as now. The spirit of antagonism must be removed."

Dr. Walker, in closing the discussion, answered some of the points brought out. One was that the classes connected with the society had been self sustaining because they could not take money from the treasury for such purpose. As an illustration what consolidation of interest might mean—there were five papers on pyorrhea presented in this vicinity in the past month. We should have had only one night for them all.

Dental clinics would be excellent things if they could be conducted properly. If we had the proper place and facilities we could send for any man and he would be glad to come.

The First District Society has been accused of copying its class plan—God forbid—we had this same work started fifteen years ago and the equipment is in the other meeting room to show for it. As to politics—there is no more in this society than there is in a Sunday school. The development of our section work would make it possible for us not to go outside of New York state for our essayists, if need be.

As Dr. Walker concluded, Dr. Tracy moved that this society appoint the necessary committee for proper consideration of the plan.

Yours truly,

THE BOROUGH.

PRACTICAL HINTS.

Learn to Improve:—The young man who is starting out in dentistry to acquire skill must be able to do something over and over and study it all the time. He must learn to do a thing better next time, and a man who will go ahead in the fields of investigation, must be willing to repeat and repeat and repeat until he has eliminated the possibilities of error.—Fred B. Noyes, Chicago.

Articulation:—If we have a deep bite or deep cusps we cannot construct a crown on a third or one-half of a root and get any lasting results, where we might obtain for a considerable time a good masticatory organ if we would do away with the cusps, simply having a flat surface. These are practical things that come to us from our general knowledge and experience, and these things we have considered for a long time.—L. L. Davis, Chicago.

Handy Laboratory Appliance:—When your steel wire brush that you use on the engine for cleaning burs becomes worn too much to be effective, if you attach it to the mandrel on the left side of the lathe it comes in very handy for cleaning files and you will be surprised how much faster a file will cut after being held against the brush for an instant or two, especially if the file is slightly worn.—Emerson Cunningham, Parry Sound, Ont.

Dental Caries:—From the standpoint of treatment, caries of dentin has no especial importance except the weakening of the tooth, exposure of the pulp, etc., caries of enamel is the initial lesion. Decay of dentin is secondary and will occur only after decay has penetrated the enamel. It is the study of caries of enamel, the local conditions of its beginning, the conditions giving opportunity for its spreading in certain directions, the limitations of spreading, etc., that are important to the practitioner.—G. V. Black, Chicago.

Regulating Appliance:—A retaining appliance should be one that is not only strong enough to withstand the tendency of the teeth to return to their former positions, but should hold the teeth firmly during mastication. It should not be unsightly and should not be allowed to remain on the teeth for any length of time uncemented, on account of the liability to cause decay. And last, but not least, it must be so constructed that it will cause no irritation of the soft tissues surrounding the teeth.—S. W. Fahrney, Chicago.

Preparing Stearate of Zinc:—I get the stearate of zinc in an ounce bottle; it is a very light powder and I spatulate one-third to half of that into an ounce of vaseline on a large plaque after melting the vaseline.

I could incorporate a great deal more, but I could not handle it in the syringe. I use the chlorid of zinc with it in severe cases. I have used iodin with it, but I have almost ceased using anything but the stearate of zinc.—J. B. Pherrin, Des Moines, Iowa.

Diagnosis:—Diagnosis is such an important part of our occupation that I feel confident in saying we never thoroughly learn it, yet how many men appear to feel the necessity of impressing their patients with their knowledge and profundity, that they often hazard an opinion which they later on would give anything for the opportunity to gracefully retract, when the proper course to pursue would be to tell the patient the conditions required studying, and as a hasty diagnosis could not be satisfactorily made, a reasonable prognosis was impossible.—W. Mitchell, London, England.

Acquire the Habit of Saving:—It is unmistakably true that of recent years the average dental practitioner has been so over-occupied trying to grasp all of the almost numberless ideas presented for his consideration, has been kept so busy with matters scientific, that things material have often been overlooked until it is too late. In many instances until the last day of grace has passed, and he finds himself forced to admit that he has well nigh exhausted his physical capital without having made proper financial preparation for declining years. Primarily of all things essential, the one most needful to be learned is that if we are to be the possessors of both cash and credit later in life, we must not only develop the habit of earning—but must acquire the habit of saving.—E. K. Blair, Waverly, Ill.

Treatment of Exposed Pulps:—A case came to my office presenting the following conditions: The left-upper and lower first and second permanent molars were very badly decayed. The upper had large occlusal cavities and the buccal walls were gone. The lowers large occlusal cavities but their walls were intact. I saw immediately cavities. It was impossible to devitalize the pulps in the limited time, so I adopted the following method: I flooded the cavities with a bichloride solution and allowed it to remain about fifteen minutes. Then I gently dried them with bibulous paper and heat. I then mixed a stiff paste composed of Aristol and the true oil of cinnamon and covered the base of the cavities with a very generous layer, and covered that with a thin mix of phosphate cement and finished it off with amalgam. The same treatment was followed with the lower teeth, but in the preparation I bruised the pulps and they bled very freely, which hemorrhage I controlled with peroxid of hydrogen. After ten years I found the teeth in perfect condition.—M. E. Grossman, Honolulu, H. I.

The Period to Start Dental Operations:—I prefer to start with the eruption of the first teeth. My idea is that the child's teeth should be kept under constant surveillance by the dentist from that day to the age of maturity and as long thereafter as may be desirable.

I would begin to care for the teeth and the child's mouth as soon as any interference was indicated. One of the newer facts made known to us is that the deciduous set of teeth are often in malocclusion and the jaws and facial bones are undeveloped or malformed, and that this occurs at the earliest stage of development. Here is a place of beginning that the large majority of dentists do not even know anything about and consequently give it no attention whatever. Volumes almost have been written as to advice to be given to pregnant women, but here is a much more important matter that is and has been almost wholly neglected. There is no question in my mind as to the practicability of carrying any healthy baby to full maturity without the loss of a single permanent tooth and with every tooth in full occlusion, with little or no destruction by caries, and the peridental tissue in perfect health.—N. S. Hoff, Ann Arbor, Mich.

MEMORANDA.

THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS.

The Canadian Dental Association and Ontario Dental Society will hold a combined convention in Toronto, Canada, May 31, June 1, 2 and 3, 1910.

WISCONSIN STATE DENTAL SOCIETY.

The fortieth annual meeting of the Wisconsin State Dental Society will be held at Ashland, Wis., July 12, 13, 14 and 15, 1910. Dr. Harvey N. Jackson, president, Wells building, Milwaukee; Dr. M. L. Christensen, secretary, Oshkosh, Wis.

ILLINOIS STATE DENTAL SOCIETY.

The 46th annual meeting of the Illinois State Dental Society will be held in Springfield, May 17, 18, 19, 20, 1910. In addition to an especially good list of essays and clinics, an unusually attractive supply exhibit is being planned. J. F. F. WALTZ, Secretary, Decatur, Ill.

CALIFORNIA STATE DENTAL ASSOCIATION.

The thirty-seventh annual meeting of the California State Dental Association will be held in San Francisco, June 22, 23, 24, 25, 1910.

An interesting program of papers and clinics is being arranged, and it will be one of the most instructive meetings ever held on the coast. Eastern friends are invited to attend on their way to Denver.

C. E. POST, Secretary.

CHICAGO-ODONTOGRAPHIC SOCIETY.

At the February meeting of the Chicago-Odontographic Society the following officers were elected for the ensuing year: President, Frank H. Zinn; vice-president, G. C. Poundstone; secretary, T. L. Grisamore; treasurer, G. W. Dittmar; librarian, F. H. Methven. Member of board of directors, A. D. Black. Board of censors: G. N. West, E. W. Elliot, L. W. Strong. F. L. GRISAMORE, Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

The forty-fifth annual session of the Missouri State Dental Association will convene in St. Louis, May 23, 24, 25 and 26, 1910. This will be the one meeting you can not afford to miss. There will not be a great many papers, but these will be the best the country can produce. Drs. G. V. Black and J. V. Conzett will be the guests of the society. The committee on reorganization will have completed their work and as a result the attendance will be double that of other years. The clinics will be extensive and cover a wide field of interest to you.

J. F. WALLACE, Secretary, Canton, Mo.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The National Association of Dental Faculties will meet at the Hotel Shirley, Denver, Colorado, Monday, July 25, at 10 o'clock a. m. The executive committee will meet to consider business of the association at 9 o'clock a. m. on the same day.

The Hotel Shirley is connected by bridge with the Savoy, where the meeting of the National Association of Dental Examiners takes place, on the same date.

The rates will be $2 a day for one and $3 for two persons in one room, European plan. Large rooms with private bath for one or two persons, $4 and $5 a day.

B. Holly Smith, Chairman Executive Committee, N. A. D. F.

ODONTOLOGICAL SOCIETY OF WESTERN PENNSYLVANIA.

The Odontological Society of Western Pennsylvania will hold its twenty-ninth annual meeting at the Monongahela House, Pittsburg, Pa., April 12 and 13.

The program includes papers by Dr. J. Leon Williams, of London, England; Dr. J. P. Buckley, of Chicago, and others. A large list of clinics is being prepared and the "biggest ever" meeting is expected.

A large hall is reserved for exhibitors and many new and interesting exhibits will be shown.

Space may be reserved by application to Dr. W. W. Booth, Carnegie, Pa.

All ethical dentists are invited to attend this meeting and join the society. For information address:

Program Committee—Dr. C. E. Peters, Fultin, building, Pittsburg, Pa.; Dr. J. H. Crawford, Diamond Bank building, Pittsburg, Pa.. Exhibit Committee—Dr. W. W. Booth, Carnegie, Pa. Membership Committee—Dr. John F. Biddle, Arch street, N. S., Pittsburg, Pa.

NEW JERSEY STATE DENTAL SOCIETY.

The fortieth annual meeting of this society will convene in Asbury Park, N. J., at the New Casino, July 20, 21, 22 and 23, 1910. This is to be the largest meeting ever held. Two days will be devoted to difficult and interesting clinics, which should not be missed. Many fine and instructive papers to be read.

Hotel Columbia will be the headquarters of the society. Asbury Park is ideal for the meeting of the society, with its ocean for bathing, and many commodious hotels. The Casino is on the beach front—large and cool. The entire floor of the Casino is to be leveled for the exhibits, which will be many and varied, and everything new will be shown. Asbury Park can be readily reached by rail, boat or motor and will be a good resort for the visitors to bring their families, who will find much entertainment of high class while they attend the meetings. No one should miss this meeting. Prospective members, ethical practitioners of other states and members of local societies are cordially welcome. For further information inquire of the secretary,

Charles A. Meeker, D. D. S., 29 Fulton street, Newark, N. J.

OBITUARY.

DR. A. J. HARRIS.

Andrew Jackson Harris was born in New York City, December 16, 1830, and died on his birthday in 1909, aged 79 years. His father, George Harris, was an architect, who removed with his family to Rock Island in 1837, where he followed his profession until his death, at the age of eighty-four. When about twenty-one years of age, Dr. Harris entered as a student the office of Dr. Brooks, who was then practicing dentistry in Rock Island. When his preceptor thought him competent to do so he opened an office on his own account in Rock Island, about 1853. Two years later he bought an office and practice in the same city from Dr. E. Hale, formerly of St. Louis. A pupil of Dr. Harris during the early years of his practice was the veteran dentist, Dr. W. T. Magill, now living in retirement at Watsonville, Cal. Drs. Harris and Magill were associated in practice until the removal of the former to Chicago in 1863. Dr. Magill bought the office and continued to practice in Rock Island till his retirement in 1908, after fifty-one years of service in his profession. A relic of that old office purchased by Dr. Harris from Dr. Hale, and still in possession of Dr. Magill, is an old mahogany operating case with the original shipping tag still nailed on the back—"E. Hale, Rock Island, Ill."

On his arrival in Chicago, Dr Harris formed a partnership with his brother-in-law, Dr. John C. Fuller, who had come here six years previously and had established a lucrative practice. In 1870 Dr. Harris became alarmed about his health and went south, but returned to Chicago in time to share the fate of all of the downtown dentists in the fire of 1871.

After the fire he came back to Chicago and continued in practice here till his retirement, about a year before his death.

In 1892 he patented an engine head and pneumatic mallet which he afterward sold to one of the supply houses.

He was a Knight Templar in the Masonic order, and a member of the Illinois State Dental Society, and the Chicago-Odontographic Society, but was for a long time prevented by defective hearing from much active participation in society meetings or affairs.

His wife died in March, 1898, and he leaves surviving two sons and one daughter, Mrs. Helen Leavitt, of Gilmore City, Iowa; Fred G. Harris, M. D., and Andrew J. Harris, D. D. S., both of Chicago. The Odontographic Society honored his memory by sending a floral tribute for his funeral. He was buried in the family lot at Rock Island beside his wife, his father and mother, and eight brothers.

EDMUND NOYES.

TRIBUTE TO DR. HARRIS BY EUGENE S. TALBOT.

Looking back forty-two years, I can distinctly see the dental office of Fuller and Harris in Clark street at the alley corner opposite the Cook county courthouse. This was three years before the Chicago fire.

The reason of this vivid recollection is that it was these gentlemen who decided my future career in life. It was a question whether I should go into business or study dentistry. In deciding this question it required many visits to their offices from which sprang a friendship which lasted throughout the lifetime of both gentlemen. They became interested in my welfare and offered me a free scholarship in a Western dental college should I decide to remain in the West. The best dental schools at that time were located in Philadelphia and, although the tuition fee was quite an item in those days, we finally decided better results would be obtained in the Philadelphia schools.

Soon after this Dr. John C. Fuller gave up practice because of many business interests which required all his time. Dr. Harris continued to practice his profession until a few years before his death. He was one of the most genial and whole-souled men I have ever met. He was always ready to give advice and help his confreres in any way within his power. He was considered in those early days one of the best practitioners in Chicago and enjoyed a large clientele and a lucrative practice.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, MAY, 1910. No. 5

MANIFESTATIONS OF SYPHILIS IN THE MOUTH.*

BY O. H. FOERSTER, M. D., MILWAUKEE, WIS.

Mr. President, Ladies and Gentlemen: Before entering upon the discussion of the subject assigned to me by your committee, I wish to assure you of my profound appreciation of the privilege now afforded me of addressing this representative body of active workers in a related profession, on a subject which has ever seemed to me as of the greatest importance, both from a scientific and sociologic viewpoint, and I desire to express my thanks to you for the privilege.

The subject of syphilis is one that is of interest to both medical and dental practitioners alike, for during the course of syphilis at some time or another it is almost certain to manifest itself by symptoms in the oral cavity. Indeed, the symptoms as they appear in the mouth may be the first for which the person affected seeks relief or advice, either from his physician or dentist, and a certain degree of familiarity with the clinical appearances of the disease, as it presents itself in the oral cavity, at least, should be the possession of every dentist. I trust the time is not far distant when every course in dental surgery will include an exposition of the subject of syphilis in its relation to dentistry.

During the past few years many important advances have been made in the study of syphilis—the causative agent has been discovered, transmission of the disease to anthropoid apes has been successfully carried out through many generations, a serum reaction specific for syphilis is now in daily use, the infectiousness of tertiary lesions — formerly considered non-infectious — has been proved in several instances, and the entire curability of the disease, as it exists in apes at least, has been repeatedly demonstrated. All these primarily experimentally interesting discoveries have found practical application, and have considerably modified our conceptions and influenced our treatment of the disease. A short resume of these recent developments may be of interest at this time.

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*A lecture delivered before the Wisconsin State Dental Society at Milwaukee, July, 1909.

The causative agent of syphilis is now universally acknowledged to be an organism belonging to the protozoön group, named the Treponema pallidum, or, incorrectly but more popularly, Spirochaete pallida. It was discovered in 1903 by Schaudinn and Hoffman, two German observers, working in the protozoön laboratory of the Imperial German Government at Berlin. The organism is a very slender, spirally wound, elongated body, its length being usually twice or three times the diameter of a red blood corpuscle. Its movements are active, rotary on its long axis, and bending, and flagellated forms have been described. It multiplies by fission. It is readily demonstrated under conditions of proper technic in practically all tissues of the body, especially in hereditary syphilis, and in the lesions and their products. It has been found in the circulating blood, in the liver, spleen, suprarenal bodies, placenta and other structures, and Hoffman's own preparations show the organism in the hair follicles in the scalp. It is most readily found in the secretion from the chancre and in mucous patches, in both the living state and in stained preparations, and this method of microscopical diagnosis is now utilized to confirm the clinical diagnosis, or it may be in fact the only method of arriving at a diagnosis in doubtful conditions. In apes inoculated with the disease the organism has been recovered in the circulating blood, in the tissues and in local lesions—and its entire disappearance, following treatment, has been shown; such treated apes later were reinfected with the disease, and passed through its various stages, while other untreated apes used as controls could not be reinfected. Both mercury and an arsenical preparation, atoxyl, were found to possess actual curative power in syphilis in apes. Although an extensive use of atoxyl in human syphilis has proved it to be ineffectual in preventing the further development of the disease, these experimental results have shown that in mercury we have an effective specific agent with which to combat syphilis as it exists in human beings. The empirical use of mercury has thus found its support and justification in these investigations. From all the evidence at hand, it does not seem too far-fetched to consider syphilis as a chronic spirillosis, and to classify it with other perhaps etiologically related affections, such as sleeping sickness.

As practitioners of dental surgery it falls within your province to possess a certain degree of familiarity with syphilitic processes as they affect the lips and tongue—as regards both your own safety from infection and to conserve the interests of your patients. I was led to a forcible realization of this view of the subject by the lamentable experience of a dentist from one of our small inland cities, who had acquired syphilis accidentally from a patient. His physician did not recognize the nature of the infection, and the disease progressed uninfluenced by treatment. When I saw the unfortunate man he had an abundance of mucous patches in his throat, syphilitic lesions of the skin and scalp, and was in a deplorable state of general health. His mental suffering was most acute when he realized the danger to which he had unknowingly subjected his patients. Not infrequently I see patients with manifest syphilis of the oral cavity, usually with small mucous patches on the tonsils or palatine half arches, who have just concluded a series of visits to their dentist for much needed dental work, without the fact of their infection with syphilis having become known to either their dentist or themselves. One is apt to consider the presence of syphilis as a more or less remote possibility in the ordinary routine of practice, until enlightened regarding its prevalence through some unfortunate, and perhaps avoidable, experience. The very frequent occurrence of accidental infection of physicians and nurses with syphilis is sufficient cause to make us all stand on guard at all times.

A brief review of the clinical manifestations in various periods of the disease may serve to refresh or amplify your knowledge of this important subject, and arouse your further interest. As you all know, the clinical manifestations of syphilis are usually assigned to three periods, designated as primary, secondary and tertiary. In some instances the line is sharply drawn between these; in others primary and secondary lesions are found co-existing side by side, and in others again, owing to malignancy of the process or to enfeebled resistance against invasion, the so-called tertiary lesions appear early, frequently within the first half year of infection. The designation tertiary, therefore, can have no value regarded from the standpoint of time, but is solely to be used in expressing the characteristics of lesions which usually appear late in the course of the disease, but which may appear early. The first symptom of the disease appears at the site of inoculation, at a period varying from ten days to three or four weeks after inoculation, and is a more or less characteristic lesion called the chancre. This may occur anywhere on the surface of the body or in its mucous cavities, on the skin or scalp, in the cavities of the mouth, nose, urethra, vagina, rectum, conjunctival sac, etc. Though usually single, the chancre may be multiple if several areas have been inoculated at the same time. I have seen as many as a dozen chancres in one patient. After a variable period of incubation, during which the virus disseminates itself throughout the body, primarily along the lymph channels, a period of from seven to eight weeks post-infection, the so-called secondary symptoms appear as generalized eruptions or rashes of macular, papular or mixed character, with erythema of the throat, and eruptions of the mucous membrane, taking on the character of mucous patches. At variable intervals following this, all manner of lesions may appear, and usually assume an ulcerating character typical of so-called tertiary lesions. Affections of the skin, mucous membranes, periosteum, bone, nervous and muscular, or parenchymatous tissues may appear, and assume the most bizarre forms, frequently hiding their syphilitic nature under the guise of other pathological states. The lesions of syphilis show a decided preference for the neighborhood of the mucous outlets of the body—the oral, genital and rectal regions, both at the beginning of and during the course of the disease. The lips, especially at the muco-cutaneous junction, are very frequently the site of accidental inoculation, and the later development of the initial lesion or chancre —in fact, the labial chancre is the most frequent extragenital chancre, and the lower lip is more frequently affected than the upper. A chancre in this situation is of characteristic appearance, being usually, when fully developed, a firm, often cartilaginous, indurated mass, of considerable size, causing the lip to protrude and be partially everted. The neighboring mucous membrane becomes dry, scaly and fissured, and the lesion is often distressing, both from pain and the disfigurement is occasions. The surface appears as if abraded, bleeds readily, and the exuded blood and serum dry into a crust which is firmly adherent, at least on the cutaneous portion of the lesion. That area of the lesion which is more directly in the mucous tissue is usually either entirely denuded or covered with a thin, bluish-gray pellicle of dead epithelium. This combination of part crusted and part denuded surface of any slowly developing, indolent, circumscribed thickening of either lip is extremely characteristic of the syphilitic initial lesion in this situation. I have described the most usual type; however, the small ulcerated papule and the large ulcerated mass are both possibilities. Attending such lesions one always finds an indolent swelling of the lymph glands beneath the jaw, and when the upper lip is affected, of the pre-auricular lymph glands on both sides. This completes the diagnostic picture. I have been struck with the frequency with which the chancre in this region has been regarded as, or has actually been preceded by, the ordinary "cold sore," the herpes labialis of common occurrence. At least 75 per cent of cases consider the chancre as an "infected cold sore." I well remember a young bride of this city who acquired a chancre on the upper lip from kissing her husband-to-be, whose mouth was filled with mucous patches. An all-wise drug clerk treated the supposed cold sore with alum, silver nitrate and copper sulphate, without much influence on the development of the disease. On her wedding day she was the recipient of congratulations and many kisses, and no doubt she distributed several lasting favors in return. The danger of the labial chancre, in its potency for spreading infection in families, is possibly greater than any other form of initial lesion, owing to its exposed location and the inevitable contact in kissing, the use of eating utensils and the like. I have often pondered upon the question why infection from extra genital sources is not more frequent than it is. Recent experiments upon apes have apparently solved this query, for it appears that the life of the spirochaeta pallida is but a short one, being a matter of hours, and that it is readily destroyed by even mild germicides. Added to this is the fact that inoculation cannot occur through the intact skin or mucous membrane—that a solution of continuity must exist to make "vaccination" with the virus possible. Were not these small barriers present, there would be nothing to prevent the entire race from becoming syphilized.

"Chancre of the tongue may appear on any part of that organ, but is commonest on the dorsum near the tip" (Keyes). It is usually an excavated ulcer with a firm, barrierlike margin, and is of considerable size. The attendant lymphangitis may produce a great amount of swelling of the surrounding tissues and makes this an extremely distressing condition. The restitution after healing of the lesion may be such as to leave practically no more than a small puckered or smooth scar.

Chancre of the gum is of great rarity. It presents itself as an eroded induration about the roots of one or more teeth. Chancre of the buccal mucous membrane is like wise infrequent and possesses no unusual distinguishing characteristics. Chancre of the tonsil is, however, not so rare. I saw four cases in a period of six weeks, and then none for a period of eighteen months. The symptoms are usually those of a mild tonsilitis; there is a depression, lassitude, usually some fever, and marked pain on swallowing. The condition persists and the patient loses weight and strength quite rapidly, and may have night sweats. In one of my cases, the diagnosis of tuberculosis had been made and the patient was prepared for a trip to Colorado, when the appearance of the eruption decided the true state of the case. The tonsil is usually enlarged in its entirety, its surface is covered with a dense, tightly adherent false membrane, beneath which the tissues are denuded or ulcerated to a variable depth. All the tissues in the vicinity are swollen densely, and the entire area involved is firm and indurated. The lymph glands on the affected side are tumefied and firm beneath the angle of the jaw and forewards.

To recapitulate, in general: Any intra-buccal lesion, or lesion on the lips, especially if it be a single lesion, which takes an indolent course for its development, which is not decidedly painful, and exhibits a central superficially ulcerated area with a surrounding ring or wall of more or less hardness, and in which the adjacent tissues are tumefied and an indolent, firm swelling of the lymph glands drains the affected area, is clinically to be regarded as a chancre. The diagnosis receives its confirmation in the demonstration of the spirocheta pallida in the stained smears, or of this organism in a living state in serum obtained from the lesion under suspicion. It is highly important that the microscopic diagnosis be made by one who is expert in this particular direction, for the differentiation of the spirocheta pallida from other, non-pathogenic spirilli which abound in the oral cavity, is a matter requiring great proficiency. While on this subject I may say a few words regarding spirochetae other than the pallida. In the mouth the spir. buccalis and spiro. dentiæ abound in great profusion, and both here and on other mucous surfaces, especially the genital, the spir. refringens is found readily in stained preparations, and in a living state by dark ground illumination. All of these organisms differ from the spir. pallida in that they are very coarse, have irregular shallow spiral windings set far apart, with extremities blunt, and staining fairly readily—whereas the pallida is an extremely attenuated, delicate, almost invisible, threadlike organism, with regular, closely set, screwlike spiral windings, with tapering ends, and staining only under special technic. In a fresh preparation the pallida is distinguished by a slow rotary motion on its long axis and an occasional twisting or bending through its entire length. The other spirochetae are very actively motile and vibrate and twist in all directions rapidly.

The discovery of the spirochetae pallida has enabled us to make a diagnosis at a much earlier period than formerly, when frequently we were obliged to wait for the development of secondary signs of syphilis before confirmation of the diagnosis was possible. It is evident that particularly in the case of chancres on exposed surfaces or in the mouth the increased danger of infection of others makes an early diagnosis most desirable, and allows us to exercise a species of prophylaxis by instituting appropriate treatment early.

Of all lesions of syphilis which appear in the oral cavity, those of the secondary period—the mucous patch or erosive plaque—are the most frequently encountered. There is scarcely a case of syphilis which at some time or other in its course does not present lesions in the mouth, and as these are all actively and highly contagious, their significance is of the utmost importance to the health of the community. The mucous patch is probably the most frequent source of infection, both genital and extragenital, and undoubtedly the most frequent source of that most deplorable accident, extragenital infection. The prompt recognition and appropriate treatment of the mucous patch would do much toward the final extinction of syphilis as a world-wide disease, and it is here that the dental surgeon can step across the boundary line drawn between his profession and that of medicine, and lend his brother practitioner a helping hand. There are many persons affected with syphilis who become aware of their disease only when mucous patches develop in their mouths and interfere with their comfort. There are others who know they have syphilis, who have been under treatment for a short period of time, and then being symptomless, consider themselves entirely well, and in opposition to their physician's advice, which they consider as commercially biased, cease all further treatment. In due course of time they develop symptoms again, and these most frequently are mucous patches in the mouth, and with these cesspools of infection—a source of danger to every one in the community—they wander about without a thought of their dangerous relation to others. Such individuals must come as frequently to the dentist as to the physician, and upon the dentist as well as the physician rests the responsibility of rendering that patient innocuous to others.

Mucous patches in the mouth are much influenced in their development by local irritation, of which tobacco, whether smoked or chewed, takes greatest prominence. Irritation by jagged edges of teeth likewise determine their presence, and a patient with a well cared for set of teeth is certainly much less liable to develop lesions in the mouth than is the possessor of imperfect teeth. Mucous patches as they occur in the mouth may be classified as either macular syphilides or erosive or ulcerative papules. The macular type is transitory and is really a generalized symmetrical redness of the velum and anterior pillars of the fauces, occurring early in the disease, and usually accompanying the mucous papule of the erosive type, which is the most frequent form assumed. It is a syphilitic papule in which the superficial epithelium is constantly shed, exposing the deeper layers so that exudation occurs. Clinically they are recognizable as superficial, rounded abraded areas, usually covered by a thin shred of macerated epidermis of a grayish, grayish-yellow or lavender color. This pellicle is often tightly adherent, but when removed shows beneath it a bleeding, bright red surface. A narrow areola of bright red color surrounds the lesion, which is usually small, varying in size from a split pea to that of a finger nail. There is no induration evident, and the edges are sharply defined and not raised. The surface of the lesion is usually slightly depressed or remains on a level with the surrounding mucous membrane. It is exceptional for the lesion to be elevated. In number, the mucous patches may be few or many, the favorite sites being on the half arches, the sides and dorsum of the tongue, and at the angles of the mouth, though no portion of the mucous membrane of the oral cavity is exempt from their presence. There is an infrequent type of the mucous patch in which the eroded surface of the papule becomes hypertrophic and forms a vegetating, cauliflower-like mass or condyloma. This is much more frequent about the genitalia than in the oral cavity. Though for the most part discrete or isolated in location, several patches may touch at their margins and coalesce, forming polycyclic or irregularly contoured lesions, and in this manner large areas of the mucous membrane, especially on the gums, may be denuded by practically one large mucous patch. If infection occurs the surface may secrete a thin puriform fluid and the surrounding areola becomes more defined and extensive, and the lesions may undergo ulceration.

The small syphilitic erosion is often very difficult to distinguish as such, as it is the least characteristic of the lesions of syphilis. It is of fugitive character, appearing and disappearing within a day or two, and healing almost at once after the lightest cauterization. It may appear as a small red spot, or its surface may be grayish or silvery, or covered with a thin yellowish membrance from mixed infection. It is frequently painful, at other times painless. In general, mucous patches are not attended by marked pain, either spontaneous or produced by contact.

The ulcerated syphilid as it occurs in the mouth, may be superficial or deep, single or multiple, rounded or irregular. The deeper types are usually seen around the fauces or tonsils. Their edges are raised, sharply cut, the bases smooth, not hard, and red or yellow in color, and exuding pus. When located at the angle of the mouth, they are usually deeply fissured and painful, with an appearance of having been scalded. When located on the dorsum of the tongue the mucous patch usually causes shedding of the papillae, leaving an irregularly outlined, smooth, polished, deep pink lesion, slightly painful, which is quite characteristic.

The characteristic mucous patch is readily differentiated from other benign affections to be found in the mouth, but under certain conditions, the differential diagnosis may become extremely difficult. Mercurial ulceration is one of these, and may cause the most expert to hesitate before pronouncing his verdict. However, in ulceration due to mercury one almost always finds a lesion on the cheek or gum behind the last molar tooth—usually the upper on one side, or in the immediate neighborhood of the upper or lower central incisors, usually the upper. In the latter situation, the gums are often retracted and intensely painful, interfering with mastication, so that patients will often refuse to take food. Other evidences of salivation may also be present to confirm the diagnosis, though the mercurial ulcer may occur without salivation. The ordinary aphthous erosions frequently accompany syphilis and very closely imitate the small superficial syphilitic ulcer. They are, however, always very painful, in contra-distinction to the syphilitic lesion. The common condition of Herpes may cause confusion; but the lesions are individually much smaller, are more frequently arranged in clusters or groups and have small polycyclic borders. Thrush and diphtheria are also to be considered as factors in making a differential diagnosis.

We now approach the consideration of the tertiary lesions, and those which affect the tongue are undoubtedly of greatest interest to you and have probably had extensive discussion before this body. I refer particularly to syphilitic leukoplakia of the tongue and buccal mucous membrane. It is undoubted that in a great many cases leukoplakia develops in those who have had syphilis; it is also a fact that the affection may occur in non-syphilitics. Its two great exciting causes are syphilis and tobacco. We may define leukoplakia buccalis, according to Pusey, as a disease of the mucous membrane of the mouth characterized by the formation of one or more whitish patches which are persistent and tend to increase in thickness. The typical lesions consist of whitish, grayish, or opalescent discolorations of the mucous membrane, without palpable density as a rule. They may be multiple, and vary much in size and shape, the general outline being irregular. Up to this point the non-syphilitic leukoplakia cannot be differentiated. But if added to these signs we observe reddish areas, in which the mucous membrane of the tongue has assumed a glistening, polished appearance owing to a loss of its papillary character, and other areas in which the surface is eroded or ulcerated and the tissues of the tongue are thickened by inflammation—then we can make a diagnosis of syphilitic leukoplakia. The polymorphic character of the process is its distinguishing feature, and although different in clinical appearance, the lesions are all on the same pathologic basis. As Keyes says: "The depapillated patches represent areas of squamous syphilid. The leukoplakia is the same process with a greater thickening of the epithelium; while sclerotic glossitis simply represents a deep extension of the same process, and erosion, ulcer and gumma are expressions at different depths of the degenerative tendency of the sclerotic tissue."

The most important point in connection with leukoplakia is its prognosis, for only too often the leukoplakic patch represents the ground that is favorable for the later development of carcinoma with its hopeless ending. Cases may last for years without developing malignant change, and others show this relatively early. In undoubted syphilitic cases the prompt employment of energetic treatment should be resorted to in order to prevent such chronic changes that a cure is impossible.

The soft palate is a favorite point of attack for that terrible lesion of syphilis—the gummatous, rapidly destructive ulcer. This usually occurs as a diffuse thickening of the velum, with redness, swelling and immobility of the part. It is almost painless and goes unnoticed by the patient until the sudden onset of ulceration and phagadena, which in a few hours may cause perforation of the palate or extensive necrosis of the tissues. Rapid further destruction occurs, and if the process is a severe one, the entire pharynx may be involved in the sloughing mass. In the ordinary case a deformity is produced which consists either of a perforation of the palate or an extensive erosion of its free border, with destruction of the uvula. Drinking of fluids results in regurgitation through the nose, the voice is made nasal in quality, and speech becomes very defective. From extensive shrinkage due to scar contraction, the posterior nares may be obliterated and the patients are rendered almost helpless. If the perforation is small it may heal completely, or a plastic operation may obliterate the defect. In larger cavities an obturator is the only means of relief, and at least allows the patient to eat with some degree of comfort. I shall not soon forget a woman who came to me some five or six years ago with a perforation through the hard palate as large at least as a silver dollar, and who for some years had worn as an obturator a ball of ordinary cotton twine which she had rolled to a proper size to fill the defect. An obturator of more pretentious character was, however, provided for her by a very skillful dentist, and I have no doubt that she has been more comfortable since.

Perforation of the hard palate usually takes place in the median line and is a manifestation late in the course of syphilis, though it may occur early in malignant cases—even within six months of the onset of the disease. An inflammatory nodule develops in the mucous membrane covering the palate, beneath which necrosis has occurred unsuspected, and suddenly the passage of air between the oral and nasal cavities announces the presence of a complete perforation.

Hereditary syphilis has been of interest to the dental profession chiefly through certain changes occurring late in the course of the disease. In the first few weeks and months of life, the syphilitic child frequently shows persistent linear ulcerations about the lips and nose, and mucous patches in the mouth, entirely similar to those occurring in acquired syphilis later in life. With the dental dystrophy known as "Hutchinson's teeth" you are doubtless thoroughly familiar, but I would call your attention to certain changes observed in the teeth of the first dentition, principally because this phase of the subject is either but scantily mentioned or entirely overlooked. Hutchinson described a condition in syphilitic children in which the incisors of the first dentition are small and discolored, while the cuspids are healthy looking. Another observation by Hutchinson concerns a condition of the deciduous cuspids in which a blunt, discolored peg projects centrally from a collar of normal appearing tooth structure, constricted at the base of the peg by a shallow groove. The familiar notched condition of the permanent upper central incisors—the classical "Hutchinson's tooth"—is frequently not a simple notch. It may show a central lobe which later wears away. The notch itself may rapidly be obliterated, and is never seen after the age of twenty-five or thirty. Gifford, of Omaha, has recently called attention to the fact that "when the notch is gone, the character of the tooth can still be recognized in many cases by the fact that the lateral lines after bulging slightly, halfway between the gum and the edge of the tooth, converge slightly till they meet the cutting edge." This bulging of the lateral lines Gifford considers the most permanent feature of the Hutchinson tooth.

I wish also to call your attention to an observation made by Fournier—our greatest syphilographer—who has made a special study of the teeth in heredosyphilitics. He describes a deformity of the first permanent molar, which he says is even more common than Hutchinson's teeth. It consists in an erosion of the summit of the tooth. About three-fourths of the tooth is entirely normal, but the terminal one-fourth is "diminished in all its diameters, irregular, eaten, as though atrophied, and separated from the healthy part by a circular ridge." After five to ten years of use this eroded crown wears away, leaving a short tooth with a smooth top, to which Fournier attaches considerable diagnostic significance.

Gifford considers these Fournier molars and the peg-shaped deciduous cuspid of Hutchinson to be fully as characteristic of syphilis as the Hutchinson incisor, and their recognition as of the greatest importance, since they often can be seen either together or separately at an age when the permanent incisors are not to be seen. A word as to the etiology of these dental stigmata may not be out of place here. They are due to an arrest in development of the teeth in the process of formation. The permanent incisors and the first permanent molars are most often involved because they are in process of formation during the first three months after birth, which is the very time during which hereditary syphilis shows the greatest virulence.

In this cursory review of the salient points of that greatest of all diseases, syphilis, I have attempted to bring into prominence only those diagnostic points which I could consider as of especial interest to the members of this society; for before treatment comes diagnosis, an art in which no one can do too much in attempting to perfect himself. In this great subject of syphilis, the boundary lines of dentistry and medicine merge one into the other, and to both dentist and physician alike is given equal opportunity for a great service in the interest of mankind—the mitigation and extermination of one of the greatest scourges in existence.

IMMOBILIZATION IN ADVANCED PYORRHEA ALVEOLARIS.

BY WILHELM THIERSCH, D. D. S. BASLE, SWITZERLAND.

This is a brief report on a case presented at the V. International Congress in Berlin. The paper on treatment of Pyorrhea, on its range of application and possibilities of success has to be published in the proceedings of the Congress and has already appeared elsewhere. Therefore it will not be reprinted here.

A very similar case to mine was published by Dr. Bryan of Basle, Switzerland, some years ago and its general principles have been applied here. But I believe I have considerably improved the method by constructing my appliance in such a way, as to be more in accordance with our modern demands of prophylactic treatment and oral hygiene.

The patient was a man of forty-six. We sent him to his family physician for treatment of light rheumatism and some digestive disturbances. He then very conscientiously followed regular out-of-door exercise, and a strict diet, which was naturally a great help for the success of the case.

In the upper jaw he only had the anterior teeth, one bicuspid and one third molar. The former had been forced out of their position

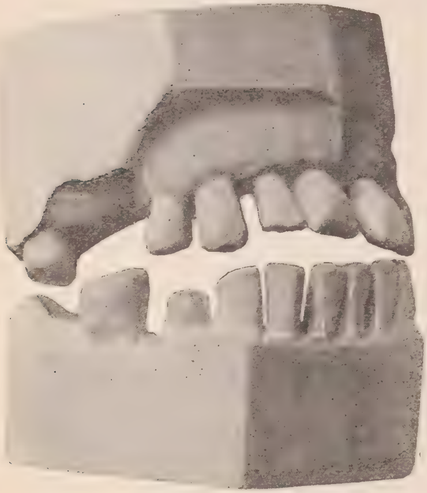

Fig. 1. Before **Treatment.**

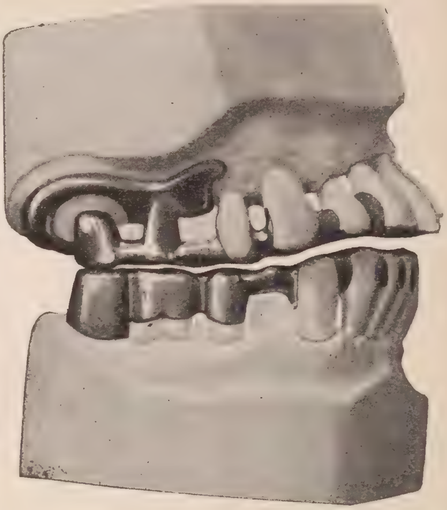

Fig. 4. After Treatment.

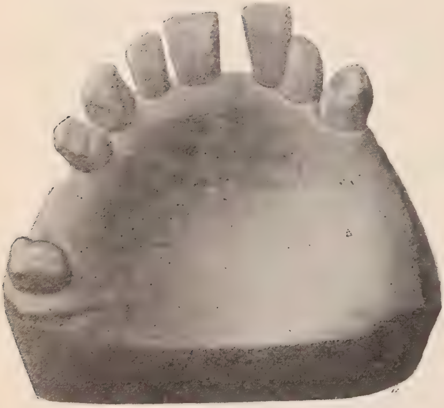

Fig. 2. Before Treatment.

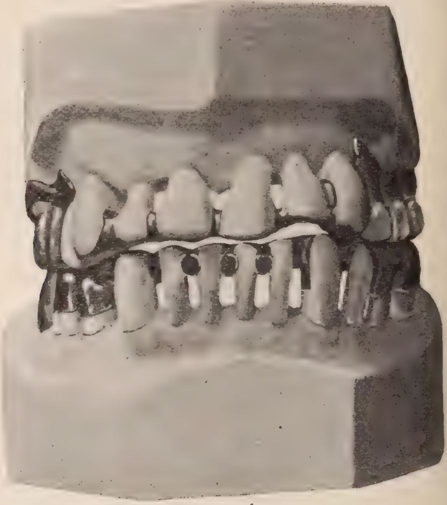

Fig. 5. After Treatment.

through undue pressure in mastication. The lower teeth were acting on them as on an inclined plane. We had to raise the bite in order to counteract this, or all the upper teeth would soon have been lost.

By joining the eight teeth of the upper jaw, we can prevent them from moving, because they are set in the form of a horseshoe. Besides this, we have to replace the missing teeth and construct the bridge in such a way, as to obtain thorough immobility and to uniformly distribute the pressure over the whole jaw.

As there is no posterior abutment on the left side, we have to use Bryan's overarch bar. (Figs. 2 and 7.)

Saddles are the means of distributing the pressure over the entire upper jaw. Here I maintain, that we could take better advantage of the conditions obtaining, than Bryan has done. His saddles only reach as far as he needs them, to set up the artificial teeth, or in other words he employs them only to have the pressure of mastication bear on the jaw.

Contrary to this I think, that we should extend them buccally on either side and distally, so as to give to the appliance some grip all around the alveolar process. In this way we can considerably improve on stability where the abutment-teeth are too few or too weak. (Compare Fig. 7 with Fig. 9, and upper jaw in Fig. 4 and Fig. 6, with Fig. 11.)

There is another weak point in Bryan's saddle. It extends mesially so far as to touch its abutment tooth and so creates a dead corner and completely bars the access to a pocket at this place. If at any time suppuration sets in again in this pocket the pus cannot help collecting between the saddle and the gum.

I prevent this danger by not soldering the saddle directly to its abutment, but by joining the two by a strong iridio-platinum bar as high up as the articulation will allow. (Compare upper jaw of Fig. 4, with Fig. 11.) A free space of more than one-sixteenth of an inch can thus be left between the neck of the tooth and the saddle to allow for draining of pus, if this ever should be necessary, and for free access of our scraping instruments for preventive treatment.

How far I can go in the application of these principles may be seen on Fig. 4, and Fig. 7. The saddle on the right side of the jaw, which, for the reasons formerly given, extends a good deal buccally and distally, is cut out all around the crown of the third molar.

I also wish to apply the same principle of keeping away from the gum to the abutments themselves. There is no difficulty with molars and bicuspids, as we do not need to extend the bands of our crowns down to the gum, but the abutment which Bryan has used on anterior teeth is neither as hygienic nor as solid as desirable. It is only a thin plate of gold laid over the lingual surface of the tooth with very little previous grinding and stuck on with cement.

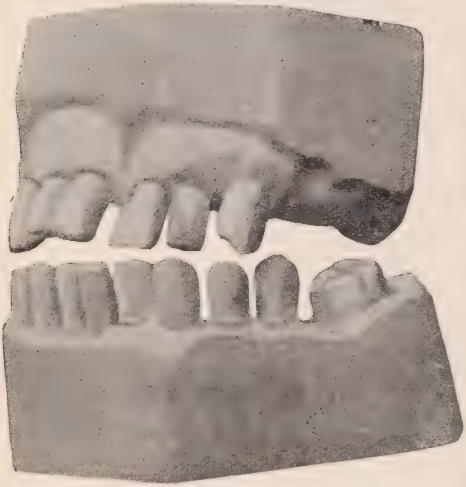

Fig. 3. Before Treatment.

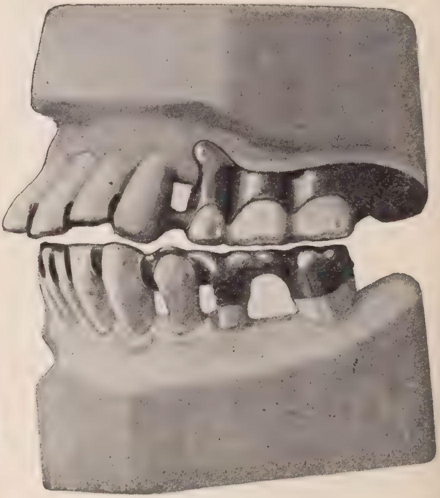

Fig. 6. After Treatment.

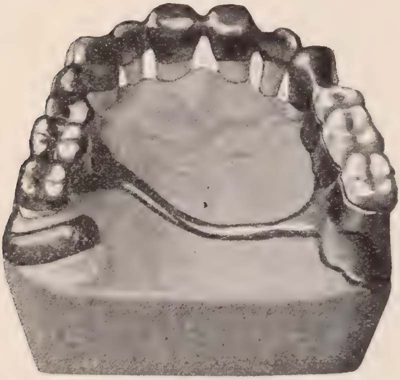

Fig. 7.

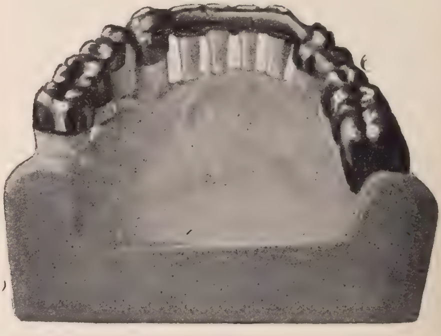

Fig. 8.

Upper and Lower Jaw of the Same Case. Lingual View.

These caps reach down to the gum, are reinforced linguo-cervically so as to leave them very thin where the articulation touches. Devitilization and grinding of the crowns were in this way avoided and time gained. But on the other hand the appliance was clumsy around the necks, the access of scraping instruments to the roots was completely barred at many places, dead corners for collecting food were created. Strong dowels were used in pulpless teeth only. With living teeth two little pins were soldered to the cap lingually and countersunk in the enamel.

Anyone will easily understand that this appliance was not attached solidly enough to all of its abutment-teeth. If you stick a round piece of metal to a surface of smooth enamel, it will, in spite of the help of two tiny pins, very likely break loose. If once one of these teeth has broken away from its cap, saliva will enter the crack and caries, dead pulps and abscesses will probably follow.

In order to avoid these drawbacks in the construction of the abutments, we have first of all to keep away from the gum as far as possible, to leave open the spaces between the necks of the teeth, so that these remain uncovered, can be daily cleaned by the patient, occasionally controlled and, if necessary, treated again by the dentist.

We cannot rely upon cervical re-enforcement, as this is the very thing which creates the dead corners. On the contrary we have to arrange for re-enforcement in the region of the crowns themselves. We should not spare our time, but should grind tooth after tooth in such a way as to make room for a strong appliance precisely in their chewing-surfaces.

Anyone knows, that a plug of metal set against a surface of ground dentin in a cavity, prepared with flat walls and right angles, will hold infinitely better, than the smooth cap mentioned above.

Hence the gold inlay is what the case calls for. With the gold inlay we are able to create an ideal anchorage for our appliance, an anchorage which splendidly answers both the requirements above stated.

Were we dealing with molars and bicuspids only, a simple inlay would be amply sufficient. The thin cutting edges of front teeth, however, urgently demand a strong dowel in the root-canal.

I need not enter into the question of devitalization in the treatment of pyorrhea; so many reasons speak in its favor that it seems an unwarrantable imprudence to leave the pulp alive in a tooth we use as an abutment for a bridge of this sort.

For these several reasons I use a gold inlay with iridio-platinum dowel as my abutment for the front teeth. I cut a groove distomesially, either end of which is so shaped, as to represent a proximo-occlusal cavity. The lingual cusp is ground down to some extent to allow body to the inlay, the margins are so prepared, as to be readily overlapped. Once the inlay fits, I bore a hole in its center and solder the dowel (Figs. 13 and 14). After much experimenting I have completely given up the plan of casting the inlay directly on the dowel.

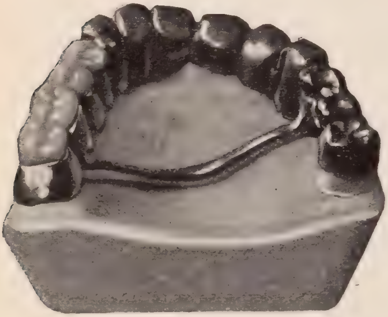

Fig. 9.

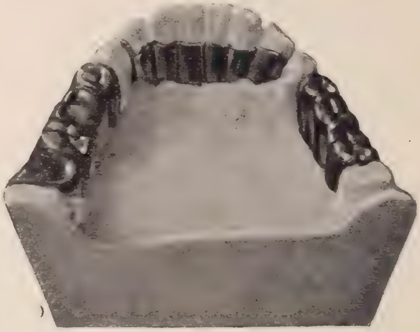

Fig. 10.

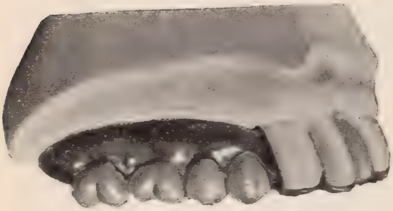

Fig. 11.

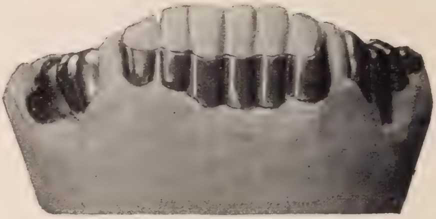

Fig. 12.

Models of Dr. Bryan's Collection Reproduced Here for Comparison.

It would be impossible to construct such an appliance on a model made from an impression of all the abutment-teeth together. I finish each inlay individually, solder them together two and two, then four and four, re-enforcing the joints by pieces of strong iridio-platinum wire and continue in this way, till all the parts are united. The result is the appliance shown in Figs. 4, 5, 6, 7 and 8.

In the lower jaw immobilization was much more easily gained, as a greater number of teeth was at our disposal. For the same reason it seemed impossible to set this whole bridge in one piece. I therefore had to construct it in three parts, the middle one mechanically engaging the two lateral ones and solidly uniting them to one whole piece.

The principles above mentioned were carried out in both lateral bridges, the bands of the molar crowns keeping away from the gum, inlays with dowels being used for the cuspids. A little saddle with a gold crown was used to replace the molar on the right side.

The four lower incisors were the only teeth in the mouth, the pulps of which I left alive; they were far less attacked by pyorrhea than the anterior teeth of the upper jaw, so that I felt justified in not removing their pulps. These teeth are linguo-labially so thin that the cutting of a cavity in their crowns is much less satisfactory than with their antagonists.

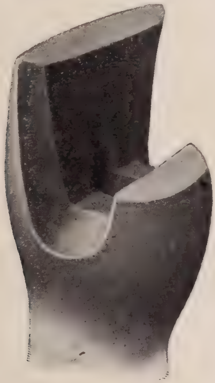

Fig. 13.—Upper left central cavity, prepared for a gold inlay abutment.

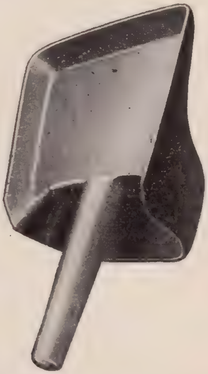

Fig. 14.—Gold inlay abutment, inner view.

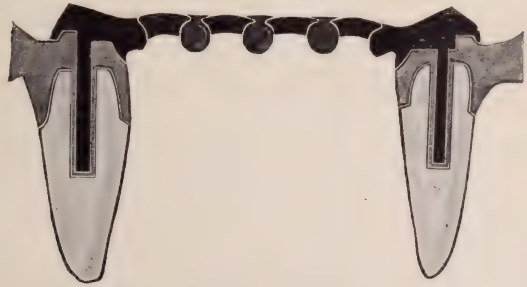

Fig. 15.—A schematical section through the middle piece of the lower bridge. White—The roots of the cuspids. Gray—Gold inlays with tubes, abutments of the lateral bridges. Black—Secondary gold inlays with pivots, abutments of the Case appliance holding the lower incisors.

For them I used something similar to the appliance which Dr.

Case of Chicago recommends for retaining regulated anterior teeth. The "Case appliance" in itself is liable to break loose, if worn for many years consecutively, for it also is stuck to unground surfaces only. I therefore insert it between two solid abutments which will absolutely protect it from the influence of any rocking force. It is then the most ideal appliance for immobilization, being very solid and at the same time exemplary as far as the freedom of the necks is concerned. (Compare Fig. 8 with Fig. 10 and lower jaw of Fig. 5, with Fig. 12.)

For this purpose I used two parallel tubes as the dowels for my cuspid inlay abutments of the lateral bridges. Around their entrance I cut into the body of these inlays secondary cavities. For these I made secondary inlays, carrying pivots, fitting into the parallel tubes. The two lateral bridges were first finished and set and then the two secondary inlays used as abutments in constructing the "Case appliance" for the four incisors.

I hope to show by this case how the gold inlay furnishes an abutment for these appliances that is more solid than anything used before and at the same time allows of constructing bridges which, by keeping away from the gum, answer the modern demands of hygiene and prophylaxis better than the appliances described heretofore.

SOME PHASES OF THE PYORRHEA QUESTION.*

BY C. N. JOHNSON, M. A., L. D. S., D. D. S. CHICAGO, ILL.

The question is often asked: Can pyorrhea alveolaris be cured? Put in that particular way the question might as well be asked: Can a mythical cow jump over a mythical moon? Until there is a better differentiation between the various conditions which manifest themselves in the tissues surrounding the teeth and which are now carelessly grouped under the one term pyorrhea alveolaris, there can be no possibility of giving an intelligent answer to any query made as to its probable cure. It will be my aim this evening to point out more or less definitely some of the most conspicuous manifestations of the disease, and state under what circumstances I believe it can be cured and others in which I deem it practically hopeless.

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*Read before the Odontological Society of Chicago, December 6, 1909.

It is a thousand pities that so large a majority of the profession, recognizing from experience the manifestly incurable character of certain stages and certain forms of the disease, have fallen into the habit of submissively throwing up their hands in defeat and proclaiming the impossibility of accomplishing anything for the patient whenever the slightest indications of this disease manifest themselves. It is doubtless within the experience of every member of this society that simple cases of gingival irritation due solely to calcareous deposits have been pronounced incurable by some dentist, and the patient dismissed without the slightest effort being made to ameliorate the trouble. So much neglect in this particular is manifest throughout the profession that it is becoming a serious reflection on us as a body, and it is high time that the conscience of the entire profession should be roused in this matter to the end that the public shall receive better service at our hands. There is no condition of this disease which cannot by proper treatment be sufficiently improved to well repay the effort, and no dentist should shirk his duty merely because the character of the work may not be inspiring to him.

The late Dr. Geo. H. Cushing once wrote an article entitled "A Blot on the Profession," in which he made an arraignment of the profession for not giving greater attention to the removal of deposits from the teeth. Until recent years the condition of the tissues surrounding the teeth has not been given the attention it deserves, and even now after all that has been written on the subject there are too many practitioners who allow abnormal conditions to exist in the mouth while constantly seeing the patient for fillings and other operative procedures. This species of neglect is not only the cause of the needless loss of a great many teeth but it fosters in the public mind the idea that any disease of the gums is hopeless. It has thus frequently occurred that many very simple and entirely curable cases have been allowed to go by default and become chronic and incurable when a little timely and intelligent attention would have preserved the teeth for years and possibly for life. It is surely time that the profession took vigorous hold of these cases and in every instance endeavor to accomplish the best that can be done for the patient's welfare.

To make an attempt to differentiate between some of the most prominent conditions we meet in these diseases of the gum and pericemental membrane we may mention first a simple case of irritation at the gingival margin due to the presence of calcareous deposits under the gum. There is usually more or less hypertrophy of the gum margin with a flow of pus on pressure but no very deep pockets, with the occlusion good and as yet no loosening of the teeth. It is in such cases as these that so many dentists utterly fail in their duty to the patient. On account of the presence of pus they assume at once that the case is incurable, when as a matter of fact, with the constitutional conditions favorable these cases are perfectly curable and curable permanently. By that I mean that the tissues can be restored to health and that they can be kept healthy by ordinary occasional attention by the dentist and the proper hygienic measures on the part of the patient. This is surely worth while both for the practitioner and the patient. It may also be stated in this connection that most patients will gladly co-operate with the dentist if the real issues of the case are explained to them. It is seldom that patients willfully wish to go on losing their teeth if there is a possibility of saving them, and much of the neglect of teeth affected by this disease is due to the impression given by the dentist that nothing can be done for it.

It is not the purpose of this paper to go into the treatment of this disease except in an incidental way, and yet it may be said that the treatment of the cases just cited relates more to proper instrumentation than to drugs. It is a good idea, of course, in connection with the operative procedures to employ a stimulative astringent, but the chief thing is to thoroughly remove the deposits and carefully smooth the surfaces of the teeth on which the deposits have formed. This in many cases is by no means an easy matter either for the patient or the operator, and yet until it is done there can be no hope of a lasting cure. It requires the most painstaking care, the greatest delicacy of touch and unlimited patience and perseverance. Then, if this is followed by such restorative and prophylactic measures as massage and friction intelligently administered in the manner so frequently pointed out, the tissues will soon resume a normal tonicity. The mouth has thus been changed from a state of disease to a condition of health, and this is surely well worth the effort.

The next condition to consider is where there are very deep pus pockets along certain sides of the roots, but the entire circumference of the root not involved and the tooth not yet loosened. These cases can be cured, the pus stopped and the pocket closed. But to thoroughly clean out a deep pocket of this kind and keep it clean till it is healed is not always easy. It is not so much the mere removal of the calculus as it is following this up with such instrumentation as will insure a complete curetting of the deeper recesses of the pocket and a scraping away of every particle of the dead and dying tissue down to the point where circulation is active and normal. This sometimes involves quite vigorous and prolonged instrumentation, a persistent scraping and gouging with delicate instruments till the denuded margin of the alveolar process is broken down and smoothed and every last vestige of infected or affected tissue is cleared away. Anything short of this will result in only temporary relief, and to accomplish this thoroughly and do it without inhuman laceration and injury to the surrounding tissue and with as little pain to the patient as possible in some of the locations in the mouth is one of the most delicate and difficult operations the dentist is called upon to perform. The insertion of an ordinary gold filling, or an inlay, or a crown is mere child's play beside it. And yet, this is the penalty exacted of patient and operator if the disease at this stage is to be cured. In addition to this the occlusion must be carefully studied and if found faulty the teeth must be ground so as to correct it. No case of pyorrhea need be expected to remain well for any time if the occlusal relation of the teeth one to the other is such that the teeth are being unduly wrenched or tipped on each closure of the jaws. The closest attention should be given to this important matter in the treatment of every case of pyorrhea, and it will be found that in many instances the inception of the disease may be traced directly to this factor.

Another condition relates to quite extensive involvement of the tissues around many or most of the teeth with the pockets running the entire circumference of the roots and a perceptible loosening of the teeth in their sockets. These cases constitute the borderland between those classed as perfectly curable and those classed as extremely doubtful. Sometimes they can be cured and the teeth tightened, and sometimes they will be lost eventually even in the face of apparently the most persistent effort to save them. The difference may be due to one of several factors. It may be impossible to secure a perfect technique in the treatment of the case on account of sensitiveness of the teeth or gums or to a nervousness on the part of the patient, or to peculiar difficulties of access to certain surfaces of the roots in remote positions or in bifurcations; or it may be due to unfavorable constitutional tendencies which profoundly affect the recuperative process in the part; or it may be that the patient either will not or cannot give the teeth and gums the necessary subsequent care to insure tonicity to the tissues. I use the term "cannot" in this connection advisedly, because there are certain patients so constituted that they are practically incapable of performing the mechanical act of brushing the teeth and gums properly. No matter how much instruction they have or how often the procedure is demonstrated to them they are not equal to the technical skill required in this apparently simple operation. And so many teeth are lost under conditions such as these in cases which if it were possible to manage them properly might be controlled.

As to the extent of loosening to which the teeth may advance before it can be said that they are hopeless no matter what the treatment, it is difficult to state, because there are cases on record where teeth extremely loose have been tightened and made useful for years. But it is quite safe to say that when a tooth has lost all of its bony support and acts as if seated on a cushion when pressure is brought to bear on it, the chances are all against ever making it firm. This cushiony or up and down movement of a tooth is far more significant and unfavorable than a great deal of lateral movement, and a case may be considered hopeless so far as any permanent relief is concerned when this movement is at all extensive.

This leads us to the consideration of another condition which is frequently met and in which there is really very little hope of saving the teeth or accomplishing much in the way of treatment. In all other cases, however bad the condition, something can be accomplished at least temporarily, but in these cases there seems to be absolutely nothing to be done. This refers to those cases in which there is a pronounced loosening of the teeth without the presence of pus or of any apparent irritation around the roots. In many instances the gum is a perfectly normal color and very little if any soreness is manifested. There is no calculus on the tooth and frequently we find no pocket and the gum attached quite firmly to the entire circumference of the root. It appears to be purely an absorption of the alveolar process around the root without any external irritation. The bony support being gone, it is folly to lacerate and break up the tissues surrounding the root with the hope of stimulating new growth, because if they were lacerated sufficiently the tooth would fall out. Eventually, when the tooth grows too loose, the constant movement develops a soreness which necessitates its removal. In some of these cases when the tooth is extracted it brings with is a mass of soft tissue strongly adherent to it, in others the movement of the tooth breaks up the attachment and the tooth simply falls out of its own accord, leaving a hole in the gum and causing almost no bleeding.

The question is frequently raised as to whether the cause of pyorrhea is local or systemic. This is about as indefinite as is the question whether or not pyorrhea can be cured. In some of the conditions just described there can be no doubt that local irritation and infection are the sole cause, while in others it is just as certain that constitutional conditions are the chief factor. The systemic relations to this disease cannot be ignored because they are retroactive if such an expression may be used in this connection. By that is meant that if it is true that systemic conditions affect the conditions in the tissues around the teeth it is just as true that the conditions around the teeth affect the system. The presence of pockets exuding pus to be carried into the stomach, and the general condition of the gums in pyorrhea cases leading to the constant absorption of the products of micro-organic growth cannot fail to exert a deleterious effect on the system, and this matter of systemic infection through the mouth must claim even more attention from the profession than it has. There are too many authentic cases on record where careful prophylactic treatment of conditions in the mouth has resulted in pronounced improved systemic conditions to permit us to longer ignore this most important factor in our service to our patients.

We are sometimes met with the argument by those who believe pyorrhea to be wholly a local affection that the best proof of their contention lies in the fact that cases improve under local treatment without any systemic medication. This must be acknowledged to be true. There is not a single condition encountered in this disease, except the cases just cited where there is no pus and no apparent irritation of the gingival tissues, which will not be vastly improved by proper local treatment, and yet there is a logical explanation of this even if we accept the constitutional theory. In these cases the good that accrues from local treatment comes from the obliteration of the congested and overloaded tissues and the temporary presence of new tissue due to nature's everpresent tendency to repair damage. New cells are thrown out in this effort at repair, the parts are nourished and take on renewed life for the time which too frequently lures the operator into the belief that he has effected a cure. But where the system is at fault, the circulation sluggish and the end-products not properly eliminated, it will only be a matter of time when congestion will recur in the tissues about the teeth, they will begin to break down and the same old trouble will eventually develop.

This does not imply that we should hesitate to do our best by local treatment in every case applying to us for relief, in fact the burden of this paper is a most urgent appeal for dentists to take vigorous hold of every case of pyorrhea and accomplish all that can be for the patient. We cannot in every instance promise a cure but we can at least stop the pus for the time and so improve the general conditions in the mouth that oral hygiene is established and the patient's health placed on a better basis. It is our province to stand guard at the vestibule of the human economy, and we owe it to ourselves as men practicing a humanitarian calling, to our medical confreres whose efficiency we may largely increase, and to our patients who place themselves confidingly in our hands, that we leave nothing undone to promote the health and add to the happiness of the people committed to our care.

COLOR.*

BY GRAFTON MUNROE, A. M., D. D. S., SPRINGFIELD, ILL.

As there is no sound without the ear so is there no color without the eye. In the complicated mechanism of our human bodies we have been furnished with organs that give us power to perceive all the varied hues of the rainbow and to enjoy all the changing scenes that characterize the passing of the seasons as well as a multitude of other visible objects that would tire the most patient listener to rehearse.

What would our hills and valleys be without the different colors with which the Almighty has adorned them? What would be the beauty of the rose if it had only a fragrance? "Consider the lilies of the field—they toil not—neither do they spin and yet I say unto you that even Solomon in all his glory was not arrayed like one of these." Have you ever stopped a moment to think why the rainbow has so many colors? Have you ever wondered why the grass is green and the sky blue?

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*Read before the Sangamo-Menard Dental Society, February, 1910.

But what would color mean without our eyes? And yet what would be the eyes without their own color? What blanks we would be with our eyes all white! These windows of the soul are the very things that by virtue of their color, often flashing fire, decide the destiny of many. The eye is the largest asset of the dentist and its relation to all departments of our work and its guidance in the discernment of different conditions requiring decisions in the observance of grades of colors makes it paramount in diagnosis—for the keen eye can often discern an opaque zone concealing a carious spot—or peering into recesses of the mouth discern inflammation by the color of the gum. The time is coming when our dental schools will be giving advice to prospective dentists about the eyes.

Color blindness will be considered as a serious blemish and the proper care of the eyes as discerners of color will be safe-guarded. It is wonderful to think of the advances recently made in photography by which the mastery has been gained in the color problem, so that now our pictures can be seen just as the eyes see them enlivened with all the colors of each particular object thus adding such great value to pictures in micro-photography whereby colors may be shown of pathological conditions. Not to digress too far but just a word regarding operations during time for artificial light. The strain may be gradual but no one can say it is not deleterious to our eyes. The use of the eyes unprotected in watching the color or glaze of porcelain work at the furnace is a practice to be avoided and these important assets of the dentist should be given our most anxious care.

But we are often, in our discussions, told to stick to the subject and some might wonder what the foregoing has to do with dentistry. Just as much as color has to do with dentistry, just so much has the eye and its perceptions of the varieties of scenes to do with color. To come then to our subject a little more closely—we are met by the color proposition the moment we enter the dentist's office. The color of the walls, the choice of drapery at the windows—the adaptation of furniture to rugs and even the color of the dentist's hands are surely objects worthy the consideration of all. The most recent use of white (porcelain) equipment in the dentist's operating room has come to be quite the thing so to speak, and yet such an outlay of money and the subsequent energy necessary to keep it always in its original condition causes some to hesitate before its adoption, for a soiled white article is more conspicuously untidy than the long tried colors of well established use.

For a long time a patient seeking a dentist's services in the selection of a set of teeth had much to say as to the choice of the color and even now-a-days we are sometimes found yielding to the request of the "finicky" old maid who wishes the pretty white teeth. But science has stepped in and brought about a decision for the selection of color according to the temperament scheme. In Japan this is an easy matter for many of the high toned ladies wear ebonized teeth and ranging from this shade we are now able to make many other color schemes in oil for staining teeth to suit the most fastidious, or even the man who would have you imitate a tobacco stain. This color scheme for varying the porcelain shades is coming into excellent use and making it possible for any dentist who has a porcelain furnace to adapt an ordinary tooth to any shade he desires, at least blending colors to make the shade much more presentable. It might be suggested that if a crown facing is to be colored the shade with backing on it (unsoldered of course) should be noted and then allowance made for that color imparted by the backing before the further shading is done by the oil colors, after the Roach plan with which most of us are familiar. When Steele's facings are used this need not cause any delay and in fact, with any facing, because the facing after shading must not be subjected to the heat of soldering.

When we stop a moment to think of color in its relations to our profession we call to mind the blue light as a potent factor in anesthesia. The red light sometimes has a narcotic action on the man looking for a drink but for an esthetic effect from light we must look only to that which is blue. A young brother of mine in his early days, once, seeing a sign where a red light was hung spelled out the sign R-e-s-t-a-u-r-a-n-t, "whiskey," so we see the impression that color can sometimes make even on the young.

How important it is that some of our most valuable materials are not endowed with the best color. Take for instance our copper amalgam, copper phosphate and even down to our greatest of all—Gold. Many amalgam fillings preserve the teeth and do much good but we have yet to find the one which does not impart a characteristic stain. In children's teeth we often put in the copper phosphate but most always with the apology that it is such a bad color. The use of the silicate fillings have come into prominence mainly because of their adaptability to the color or shades of the teeth and the manufacturers of Ascher's enamels have gotten out quite elaborate tables to show how different mixes can be made to obtain different colors to match different shades of the teeth. Many of us might learn much from the instructions given these days in our public schools along the lines of crayon work or work in water colors. Experiments of a pleasing kind might be entered into by any society under the direction of a competent instructor. Suppose for instance, we should be asked to mix the proper colors to obtain violet, how many could do it? The primary colors, red, yellow and blue, can be mixed so as to produce many shades. Red and yellow in varying proportions will produce orange of reddish hue or orange of yellowish hue. Red and blue will give us violet of hues of the two component primaries, while the proper mixes of yellow and blue will make green of varying hues. Experiments of similar character using the larger system, often employed in porcelain work, will give us ideas of how different colors can be graduated or varied in intesity by layer on layer of the primary colors, very much the same as in actual mixing of the colors. It might be an evening of profitable entertainment if we could have an expert from one of our dental manufactories come to give us a clinic or demonstration on the use of colors or pigments in the manufacture of dental porcelain.´ The pigments most commonly used are precipitated gold, platinum, purple of Cassius, the oxids of gold, titanium, manganese, cobalt, iron uranium and silver, producing by their use in varying proportions the colors of red, yellow, blue, brown and gray.

In my reading I have learned that red is used extensively by inlay workers, and all enamel gums are tints of red. Added to brown, it increases its luminosity; its tints should be used on buccal and lingual surfaces extending rootwise. Yellow is the color used most by porcelain inlay workers—it gives brilliancy to browns or grays. Blue is used to build the body of incisal and occlusal portions of inlays for those teeth of blue incisal edges or cusps. Various hues of colors are produced by mixing pigments in various proportions or by superimposing a layer of one pigment upon another. This latter method is advocated by Dr. Reeves and others, yet Dr. Joseph Head says, in *Items of Interest*, "How these various colors in a porcelain sufficiently translucent to permit them to blend, can be free from the darkening that comes when a large portion of the porcelain is excluded from the light by an opaque cement, passes comprehension." Even if any porcelain worker shall study most diligently the influence of light and color he will likely meet with difficulties before he can successfully match the teeth. The optical effect of the color of a porcelain inlay is dependent upon many unavoidable influences.

One authority writing of porcelain inlay work says, "Color is distinguished as possessing three attributes, viz: purity, hue and luminosity." These attributes have much to do with the effect produced upon the eye of the observing operator and are conditions which are met with in the matching of teeth. More so in porcelain work than any other the personal equation takes on the form of skill in the ability to handle colors so as to obtain the correct hues and tones.. It has been found that the ordinary person can only distinguish a few of the more intense colors and a limited number of changes in their tones but the trained eye can count the number of hues to the normal spectrum by the thousand. As therefore the variations of tone and hue are so many and slight, it is absolutely necessary for the operator who would call himself expert in porcelain work to have sufficient skill to be able to modify colors at will. We can readily see how difficult is the problem before those of us who practice in cities of fifty thousand inhabitants to attain the grade of a porcelain expert because of the necessarily limited demand—unless perchance the operator determines to study—study—study—only porcelain and color. Mineral pigments as I have indicated previously are those most used in coloring teeth by manufacturers and those which oxidize easily fuse at a lower temperature than those of the more permanent class. Colors are not fully developed if underbaked and they are decomposed by being overbaked; this overbaking causing some porosity with lightening of color. This calls to mind an experience through which your essayist passed on one occasion when an expert paid by a dental firm, passing through our city, insisted on baking a porcelain bridge. It was so poorly done that the overbaking spoiled the whole piece because of the loss of color and the great amount of porosity.

After all the expenditure of time and skill in building a porcelain inlay we come up to that problem which has such an important part in the entire result of our work, it is the cement problem. No doubt many of us who have used porcelain have fancied we had a beautiful match when the porcelain inlay was simply placed in the cavity without the film of cement—but were we just as much pleased after the opaque cement flooring was in? The color problem then is surrounded by many conditions not easily enumerated or mastered and it behooves us all to study it as much as we can and use our patience and attain as much knowledge and skill as we can, and even then be not discouraged though we fall short of our highest ideals—but keep on doing the best we can.

SOME THOUGHTS ON THE SURGICAL SIDE OF DENTISTRY.*

BY A. T. RASMUSSEN, D. D. S., LA CROSSE, WIS.

Mr. President and members, I want to give you a few scattered thoughts on the surgical side of dentistry; but, before going into the subject, let me say that anything I may call attention to is not said in any spirit of antagonism or malice; neither is it in a spirit of criticism, except in so far as constructive and not destructive criticism is a benefit to all of us. Neither do I want you to think me a pessimist, for I am not. On the contrary, I have the most optimistic views of the future of dentistry as a profession, being told by the men at the head of our dental schools that every year sees more really intelligent and thinking men taking up the study of dentistry.

Most of you know that it has been my privilege to go into the offices of a great many different men during the last two or three years and in so doing I have observed a good many things, some of which have been of the greatest benefit to me and on the other hand, some which I should not like to relate here tonight.

I have learned that the men who are striving to reach the highest pinnacle of success in their chosen profession are not confined to any particular city or section of the country. I have also found that men all over the country are making the same mistakes, stumbling into the same pitfalls and plodding along in the same old ruts that we, who are members of this society, are apt to do. That is the reason for my remarks this evening.

That the practice of dentistry has taken on a surgical aspect during the last few years, every member of the profession who is at all alive to the advances made along all lines, as well within the field of dentistry as without, will readily admit. The practice of dentistry may be divided into three distinct branches without going into any of the so-called specialties, of which orthodontia might be mentioned as a fair example. These three branches are the SURGICAL, the MEDICAL and the PROSTHETIC.

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*Read before the La Crosse District Dental Society, La Crosse, Wis., November 9, 1909.

I have mentioned these three in the order of their importance to the public and our patients, whom we are trying to serve. However, these overlap and interlock with one another in such a way that it is impossible to practice one intelligently without having a good knowledge of the other two. For example, a dentist undertakes to construct a bridge to be placed in the mouth of a patient; in order to do this and to do it well he must be a good prosthetist, a good mechanic. And right here let me stop long enough to say that being a mechanic is not a thing to be ashamed of but rather to be sought after. Without the men who make realities out of ideas this world would, indeed, be a sorry one. The speaker feels no small amount of pride in being able to drive a nail without hitting the thumb, making a piece of furniture or going to work in a machine shop if the occasion should demand.

But being a mechanic is not enough; he must be a metallurgist, having a knowledge of the effects of the different metals upon the tissues of the mouth when placed in contact with them for a longer or shorter period of time. Also, he must know the effects of the fluids of the mouth upon the different metals as well as other materials at his disposal. Therefore I say, he must be a chemist.

He must be a stomatologist in order to recognize the symptoms of disease as they manifest themselves in the mouth, thereby often concluding whether or not a certain class of work which he intends to do will be the proper thing for that particular case.

Then, having recognized these things, he must have a general knowledge of medicine and the practice of it, in order that he may be able to prescribe the right line of treatment to place his patient in the best possible condition physically. If the patient is anemic he must know what the trouble is and then treat accordingly and not simply say to the patient, "now you take a bottle of tonic made by Blank Blank & Co.," just because this firm has sent more advertising matter than some other concern. (Let me say right here that the reason that so much advertising matter of this kind comes into our offices is that these companies recognize the fact that so many men are inclined to become non-thinkers and therefore seek to put their name before the dentists' eyes oftener than their competitors, knowing that, without stopping to think, he will prescribe their product in all cases).

These things and a great many others he must take into consideration in each case where he undertakes to construct an artificial substitute for any of the natural organs which have been lost, either through accident or disease. All this, of course, would be simple enough were it not for the fact that rarely do we find that conditions are just alike in any two cases. Therefore I say that if dentistry is to be practiced intelligently these things must be a part of any individual's knowledge who takes upon himself the responsibility of treating any abnormal condition of mouth, teeth or adjacent parts.

However, dentistry to be at its best, must be practiced from its surgical standpoint first, last and all the time. To go back to the making of a bridge, one of the first things to be taken into consideration is whether or not there are any roots of teeth which it is necessary to remove and why is it necessary. Then I say that the very first look into the mouth must be directed from the surgical side of the question. Some of the other things coming under this head are as follows: Are there any abscesses discharging pus into the mouth, the maxillary sinus, the outside of the face or even the pus from which is absorbed directly into the system, the latter commonly being known as a blind abscess? Are there any abnormal growths about the mouth which will be benefited or possibly aggravated by the treatment contemplated? Is the condition of the remaining roots or teeth as well as the peridental membranes and bone surrounding them in such a condition that they will be able to bear the extra stress to which they will be subjected when a bridge is placed in position? Is matabolism of the cellular elements of the tissues going on in a normal way, or has the process of katabolism gained the upper hand and the tissues wasting away?

These observations having been made, of course the proper line of treatment must follow. However, I have not time this evening to go into the detail of that, but just want to call your attention to them in order that it may remind you as well as myself of the necessity of studying our patients from this point of view. If a man becomes a close observer of conditions, in other words a good diagnostician, I have not the slightest fear of his being able to treat the conditions properly and intelligently.

The conditions being now ideal or as nearly so as it is possible to get them, we come to the preparation of the roots for the reception of the crowns which are to act as abutments for the bridge. We will say nothing about the removal of pulps and filling root canals at this time, but will speak of that a little later. The preparation of a root, the grinding and shaping of it must be done with surgical care and accuracy if we would attain the very best results. Certainly no one should pretend to practice dentistry or any of the branches of the healing arts unless he strives to do his very best in every case. In the case of a banded crown, the root should be so shaped that the band, when in place, will fit like the hoop on a barrel. That may sound like a very homely illustration but it is a fact nevertheless that in a great many instances the man who makes the beer keg or oil barrel is far more careful and accurate than the man who makes a band for a crown. Every man here knows too well the effects of an ill-fitting band to make it necessary for me to make any further comments on it, but I would say this, never feel satisfied until the band fits the root just as tightly as it is possible for it to fit, not some places but all around the root. Always remember it is a surgical operation, that of removing the enamel of a tooth and replacing it with a band of metal. If this were always kept in mind, most bands would fit better than they do.

I must hurry on, but just want to say that wherever this is done the gum is apt to be more or less lacerated and here again it is necessary to be on guard against infection. Again the surgical aspect of the operation. The mouth should always be in such a condition that wherever the continuity of surface is broken, there will be the least possible danger of infection. Every surgeon dentist naturally makes a study of bacteriology, histology, etc., and consequently these things will not seem like a lot of superfluous precautions but rather like very important details which cannot be overlooked.

Now, if a bridge is made, taking these things into consideration as well as some others which I cannot take time to mention this evening, we will have an artificial substitute for the natural organs which is as nearly what everyone has a right to expect, as it is possible for human mind and hand to make, viz., a first class substitute for the lost organs of mastication, made and placed in the mouth in the most skillful and scientific manner and above all with surgical cleanliness. If these things are not properly considered it were better for the patient a thousand times that it had never been attempted.

In regard to the man who does not think he has time to consider these little things and then treat his patients accordingly, I know of no better thing to say than to use the phrase of the Master when he said, "It were better for him (and certainly for the public) that a millstone be hung about his neck and he cast into the sea."

Until every practitioner of dentistry fully realizes that the extraction of a tooth is a surgical operation which must be done with as much care, both as to the condition of the tissues operated upon as well as the hands of the operator and his instruments (having reference, of course, to asepsis), we shall have infection of the tissues, causing sloughing of the gums, necrosis of the bone, infection of the antrum of Highmore as well as the other sinuses of the head and that whole train of troubles, all the way from a slight local disturbance to a general septicemia and death.

Death the result of the extraction of a tooth? Yes, and why not? When we take into consideration the careless manner in which this operation is often done and then remember what a slight injury will often cause death, it is a marvel that more fatalities do not occur from an operation which leaves a great open exposed wound, such as does the extraction of a tooth.

But with the knowledge of bacteriology, such as every dentist of today has (or if he has not, he ought to get it), there seems to be very little excuse for infecting the tissues with the hypodermic needle or forceps that have not been properly sterilized.

A needle is not in an aseptic condition as it is taken from the drawer of the cabinet, the box, the fancy leather case or what not. It must be sterilized every time before it is used and immediately after, and then we need have no fear of the local anesthetic causing sloughing of the gums. Then, to repeat, sterilize after every operation and always immediately before the next. The same holds good in regard to forceps and all other instruments coming in contact with the soft tissues or bone.

Now, if you do not think you can afford to go to all this trouble and then extract a tooth and get fifty cents for it, why charge them fifty dollars, but whatever yóu do, or whatever you charge, STERILIZE, STERILIZE, STERILIZE.

I had not intended to say anything about local anesthetics or their use, but upon giving it a second thought I want to warn you against certain things which I have seen but hope no one here is guilty of. Many men use so and so's local anesthetic just because so and so says it is a powerful anesthetic and non-toxic. Don't do that. They are all of a toxic nature. That is the very basis upon which they work. All useful, more or less reliable and comparatively safe when discreetly used, but an unmeasured evil in the hands of the careless. I have seen men take an old, broken hypodermic needle and force it through the cork of bottle containing the anesthetic, so arranging it that the syringe could be screwed into it and by turning the bottle upside down, withdraw the piston and fill the syringe in this way. This will stand around and catch the bacteria laden dust in the wide open end of that needle which acts as a regular funnel for catching it, then the syringe is attached and all this drawn into it and in turn injected into the tissues. Now don't do that either. Can you think of a more filthy or unscientific way of doing things? If you want to know what that needle contains, make a culture of it and examine it under the microscope and I venture to say that it will surprise you. Keep the surgical side of dentistry uppermost in the mind and these things will not occur.

I do not think it would be amiss to call attention to the fact that the removal of a pulp from the root canal of a tooth and the filling of that canal is the most delicate operation ever performed upon the human body. The instrument (the broach), is the finest and most delicate known to the surgical instrument maker. The field of operation is obstructed from view, making it necessary to be guided exclusively by the sense of touch. Then it must be the object of every one to fill that canal to its very apex every time. Again you cannot see the end and it therefore becomes a very exacting thing to do.

Notice, I said it should be our aim to do this every time. I am not one of those who have reached such a stage of perfection that I can do it every time, but will say this that I do succeed in getting into very many root canals that at first it would seem impossible to even get the point of the finest broach into. I would like to go further into this but cannot take the time so will just say that patience and stick-to-it-ive-ness are two essential things when trying to open one of these seemingly closed and tortuous little canals. However, no stone should be left unturned or any effort considered too great to accomplish this end.

What was said a moment ago about sterilizing instruments used for extraction, holds good, even to a greater extent, possibly in this instance. To begin with, the mouth should be in as nearly an aseptic condition as possible; then the necks of the teeth to receive the rubber dam should be thoroughly cleansed and wiped with cotton saturated with alcohol.

Of course, no pulp extirpation can properly or safely be done without first isolating the tooth or teeth with the rubber dam placed so as to absolutely exclude the fluids of the mouth as well as the breath of the patient which is always laden with micro-organisms, both pathogenic and non-pathogenic. After being in place the rubber dam and exposed teeth should all be thoroughly cleansed with alcohol and dried with a blast of air. This having been done, the instruments to be used in opening the pulp chamber must have been sterilized since last using them. (I have reference to excavators, chisels, burs, etc.)

After most of the decayed material has been removed it is a good plan to saturate the remaining softened dentin with some of the essential oils, such as oil of cloves or a solution of thymol in carbolic acid and evaporate it with a blast of warm air from the hot air syringe.

Now you are ready to open the pulp chamber. This being done. we come to the removal of the pulp itself. If this be done under pressure anesthesia, be sure that the anesthetic, whatever it is, is sterile, and if the devitalizing process is used these precautions must be taken, both at the time of applying the devitalizing agent and of removing the pulp.

After the pulp chamber is opened, never allow anything to enter the cavity or canal which is not surgically clean. Never put a broach in the canal without first dipping it in an antiseptic of some kind, preferably in carbolic acid and afterwards immersing in alcohol. Then when laying down the broach, be careful that it never comes in contact with anything that is not sterile. These things are of the most vital importance.

Always remember it is vital tissues with which you are working; tissues which are sure to react to your treatment, be it good or bad. Do not think for one minute that any thing can be slighted without its subsequent consequences. While you may not always see the results of your own carelessness, the other fellow will.

We will not go into details in regard to what is the best material with which to fill a root canal but want to say this, that whatever we use, it must be our constant aim and effort to fill that canal right to the end and no further, properly sealing the apex against the ingress of any secretions of the tissues to later undergo decomposition or act as a field for the development of any of the pyogenic organisms, causing the all too familiar alveolar abscess.

Just a word in regard to the proper time to fill a root canal. If a pulp is not previously infected, and it is opened and removed under proper surgical precautions, there is no better time to fill it than right then and there as soon as the hemorrhage is stopped and the canal thoroughly dried. You will never get it in a better condition and furthermore, the oftener it is opened the more chances of infection.

If properly done, you need have no fear of filling at once. When I say "properly done," I do not mean that any definite rules can be laid down which can be followed in every instance or even in a majority of cases. No, each and every case undertaken must be carefully studied and the conditions existing in that particular case, scientifically taken into consideration, even to the minutest detail and then treated accordingly.

Now what does all this mean? It means that the thoughtless ways which some of our fellow practitioners have gotten into must be forsaken and these same men get into the THINKING WAY if they would at all lay claim to being, not only intelligent men, but members of a learned profession. It means that we must all be keen observers and students as long as we live and not just scrape through college and then, to use at least one dentist's expression about himself, "never to have opened a book since."

Now I want to mention two things in this connection which I have had so forcibly thrust upon me from time to time that I cannot pass by this opportunity to mention them and at the same time sound a warning to myself as well as to you men assembled here tonight.

The first of these is that it is absolutely useless to take all precautions in the way of putting on the rubber dam, sterilizing the instruments, including the broach, removing the pulp under the most perfect conditions and then to do what it has been my misfortune to see in almost numberless instances, viz., to wrap cotton on a broach with fingers upon which absolutely no effort has been made to put them in a condition fit to touch anything coming in contact with a surgical wound and then insert this into the canal and wipe and twist it until one would think that the operator had a grudge against his patient and was not satisfied by merely carrying the infection into the canal, but wanted to "rub it in." So long as this is done in a single instance, abscesses will occur after the filling of root canals.

Let me say right here that while washing the hands with soap and water is a very commendable thing, it by no means fills the bill or puts the hands in a condition where they are fit to wrap a broach with cotton to be inserted into a root canal. After washing, they must be cleansed with some of the more potent germicides. Personally, I always use alcohol on the fingers the last thing. This quickly evaporates and leaves the hands dry so the cotton does not adhere to them.

The second is that it is folly to take all the aforementioned precautions and then fill the canal with a gutta percha point that is not sterile. Now these points are not sterile as they come to us in the little paper boxes as put up by the manufacturer. Usually the person making them as well as the one who places them in the boxes has not the slightest conception of the meaning of the words bacteriology or micro-organism. How then can you expect the points to be in an aseptic condition when packed in the box ready to be sent out? Moreover, if they were sterile then, you would hardly expect them to be by the time they reach your office. I have seen these boxes opened in the supply houses, the points spilled on the show case, picked up with the fingers of the man in charge, placed in the box again and later, of course, sold to our unsuspecting brother, who, either never stops to think or else takes it for granted that the good Lord made and keeps gutta percha points sterile. He proceeds to fill canals with them and then wonders how it is that abscesses will occur after the canals have been "carefully filled." Gentlemen, I say it is a marvel that they do not all abscess ofter such treatment as this.

Now then, all this means that the members of the dental profession have got to become better surgeons. It is an encouraging feature that the Dental Colleges are laying more stress on this phase of Dental Education than formerly and that every year sees more men entering the profession, better equipped with that knowledge of the subjects so essential to them and their patients and also men who more fully realize the importance of the surgical side of their profession. Men who can go out into the world and take their places along side of the most learned and scientific men of the day and discuss, intelligently, the current events, both scientific and otherwise, but who most of all are THINKING INDIVIDUALS and not machines.

For fear of taking too much time, I shall refrain from going into the field of Oral Surgery, which I had intended to do. This, as well as the entire surgical aspect of dentistry, is very dear to me for the reason that I know what a vast amount of suffering the public will be relieved of and the untold pain, agony and disfigurment which will be prevented when every dentist is a thinking, reasoning, observing and studious surgeon as well as being able to construct a good bridge, insert a good filling or make an artificial denture. I have touched practically upon two points only and upon these it seems we have only scratched the surface. There are so many things that could profitably be said on either one that each would make a good subject for a paper in itself.

Before I close I want to say this to every member of this society: When we get home from this meeting, let us go to our book shelf and get out what works we have on physiology, histology, bacteriology, toxicology, chemistry, anatomy, metallurgy, materia medica, therapeutics, the practice of medicine and surgery, etc., and see what they look like. Then if they are old and antiquated, let us place them on the retired list and purchase new and up-to-date works. You cannot make a better investment than this. Then last and most important of all, let us become students of them. The best education a man ever gets is what he digs out for himself. The effect of such study upon the individual persuing it would be that he would become a keener observer of things as they come to him with the result he would be able to recognize the little symptoms which often mean so much to the patient under his care. As stated before, you need have no fear of his ability to treat properly if he once becomes a THINKER.

Even though most of you would not care to enter extensively into the field of oral surgery and perform operations for extensive necrosis or caries of the bone, empyemia of the maxillary or other sinuses, actinomycosis, tic doloreaux, or tri facial neuralgia, cleft palate, hare-lip, carcinoma, epithelioma or any of the malignant growths which we see about the mouth and face, you would be rendering your patient a service of inestimable value, for which you would be entitled to a good fee by recognizing the trouble and referring them to, or placing them in the care of some one whom you felt was competent and willing to take charge of it.

At the risk of repetition I would plead with you, let us strive to become better physiologists, better histologists, better bacteriologists, toxicologists, chemists, anatomists, better men, BETTER SURGEONS.

THERAPEUTICS APPLIED IN THE TREATMENT OF DECIDUOUS TEETH.*

BY DR. A. D. KYNER, MOWEAQUA, ILL.

The desirability of the treatment and retention of deciduous teeth until the appearance of their permanent successors is no longer a question for discussion among dentists. That these temporary teeth perform an important function and that the normal growth and development of the child depends largely on their presence is generally conceded by the dental profession and is finally dawning on the medical fraternity. This is best evidenced by a general awakening on the part of boards of health and education towards the necessity of instructing the school children in oral hygiene by professional lecturers. The efforts that have heretofore been made by the regular school instructors to teach this subject, have been of but little real benefit to the child. The teacher, being a layman himself, would not be qualified to do the subject justice, and the child took it as routine school work. Forgotten as soon as the last page or two of the physiology had been mastered.

In New York, lectures on care of the teeth have been given in the schools for the past three years, under the supervision of the board of education. The dental society in Rochester, N. Y., maintains a free dental hospital for the care of the teeth of the needy poor. Cleveland, Ohio, cared for the teeth of 1,500 poor children last year, and the town of Milton, Pa., paid for the dental services needed for their charity children. There may be other communities where free dental infirmaries are conducted, but they did not come to notice. These few, however, show the trend of coming events, and while as yet nothing systematic has been attempted in this country, it is hoped that the time will soon come when oral prophylaxis for the child will be made compulsory. A recent editorial in one of the large dailies, published a column about this compulsory feature as practiced in Bohemia. In that country the child upon entrance to school is given a thorough examination, its physical defects noted and treatment instituted. This system is also in vogue in Strassburg, Germany, and, although having been in operation but a short time, the good results already attained are testified to in the improved health and higher intelligence of the children, which is merely another way of stating that a child is properly nourished through its ability to do its part in preparing the food for assimilation in a clean and comfortable oral cavity.

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*Read before the Central Dental Society at Paris Ill., February 15, 1910.

A medical examination recently made in Chicago of the physical condition of the school children showed but 33⅓ per cent suffering from dental diseases. If this is correct, it shows that the people of that city are freer from dental lesions than any other spot on the face of the earth, because examinations made in other places show that about 95 per cent of the people suffer from dental affections, and as there has been but little or no co-operation between the medical and dental profession of that city, along the lines of caring for the teeth of the school children, it is to be inferred that the education of the medical profession must precede that of the laity, or about 60 per cent of the dental diseases will not be recognized.

The following brief figures taken from a table of statistics recently published by Dr. T. T. Ridder of Missoula, Mont., show the condition of the oral cavity of school children generally: Children examined, 1,900, in which 10,000 cavities in deciduous and permanent teeth were found, 522 teeth and roots needed extracting, 334 permanent teeth had been extracted and numerous mal-occlusions were evidenced from the premature loss of, presumably, the first permanent molar. Only about one-third of the children used a tooth brush daily and but 97 were free from caries, etc. Other tables of statistics examined showed the same deplorable condition and it must be admitted that these figures prove that the child is practically a stranger in the dental office, and, to my mind, the paramount question before us today is how to educate the parents to bring their children to the dentist early in life, before painful conditions necessitate the visit.

All who have attempted to practice this educational feature in their offices will have noted among other things the old fallacy that temporary teeth are soon replaced and may be extracted without harmful results to the child, is born, "bread" and buttered into the minds of nine-tenths of the parents. After having done your best to explain along the lines of physical development why these teeth should be retained, they frequently say, "It must be a recent discovery, as it was never done in the good old days," and unless you have some horrible example at hand to prove your point many are of the same old opinion still. If you should branch out into the bacteriological aspect of the question and tell them that the mouth is a regular incubator for the propagation and growth of all kinds of micro-organisms, that the pneumococci, tubercle, diphtheria, scarlet fever, typhoid bacilli, etc., are common habitants of the mouth and only await favorable opportunity, when the normal resistance is lowered, to establish themselves, and that, no doubt, many of the above diseases are from direct infection of the oral cavity and that it is possible by keeping the mouth in a healthy condition to lessen these dangers, you are probably looked upon as a theorist, setting up straw men, and you have not produced the desired result, because this point has not been agitated long enough. Even proven remedial agents of long established worth, such as vaccination or antitoxine, etc., still have numerous foes. If a man dies from septic poisoning caused from an abscessed tooth, the community is convinced that death may occur from an alveolar abscess. But if little Johnnie, with a neglected oral cavity reeking in filth, contracts pneumonia and dies, it is difficult here to trace the infection, although the mouth environments were favorable as being the source. The services of the dentist and a tooth brush might have saved little Johnnie, but he was not given the benefit of prophylactic measures because the laity has not as yet learned that clean comfortable teeth and healthy mucous membrane is Nature's own immunity against disease.

Horace Fletcher says that "we control just three inches of digestion," etc., and if it is pointed out how important it is that the food should be thoroughly comminuted and mixed with the saliva in the mouth, that the first process of digestion begins in that part of the alimentary tract over which we exercise some supervision, and this function depends to a great extent on the thoroughness of the act of mastication, and how detrimental it is to the normal growth and development of the child if these functions cannot properly be performed because the food is bolted and mixed with decomposing debris, with the certainty that one cannot violate Nature's laws with impunity, the lesson is mostly lost because the future evils that follow malnutrition in youth are not now apparent. I have no doubt but that many a sour-faced old dyspeptic individual is paying the debt of eating like a snake when a child, without first procuring a set of teeth for his stomach.

It is believed that two phases enter into the question of the care of the children's teeth—pain and paying. It is all very well to point to the dental chair as a place to develop character; to instill into the minds of patients that they are to cultivate such noble traits as courage, patience, fortitude, forbearance, etc., but it is the common experience of all that most patients patronize the dentist only when compelled to go, and it is this insurmountable dread of the dental chair that nullifies to a great extent the dentist's efforts to educate the patient. Our educational propaganda will succeed in proportion to our ability to minimize pain and when the high pressure syringe, anaesthetic spray and obtunding agents accomplish so-called painless dentistry they will be the educators of the laity—not the words of the dentist. The child, of course, follows the parents, doing as they do (sometimes much better), and we will be able to more easily reach them when the applications of topical local anaesthetics that inhibit pain for the parents attain a higher degree of perfection, and it is my opinion that the child will never be brought to us in any other way.

The dental journals are full of articles by able men on the care of children's teeth. Dentists have talked it among themselves and in the office for years, and yet anyone taking the trouble to study tables of statistics as published from time to time will learn that the scarcity of children in his office is but the universal dearth everywhere. And while, as mentioned above, paying or monetary considerations may enter into the question to a certain extent, it does not explain why those who could afford it do not bring their children to the dentist except when compelled to do so from pain. And it is to the little one who is presented with an aching vital pulp or alveolar abscess that I wish to call your attention only, and not consider filling methods for teeth not requiring therapeutical treatment. In the numerous articles that you may read on the treatment of vital pulps in deciduous molars, a majority prefer to apply a capping of some kind or resort to a tentative course and expect further trouble. It was noticed that when this kind of treatment was practiced, both patient and parent lost considerable of their respect for my ability when further medication was rendered necessary from congestions and death of the pulp. It may be that these cappings or tentative treatment were not skillfully applied, or the substances selected for deep-seated cavities not wisely chosen, but as it is well known that pulps, whether actually exposed or not, are sometimes infected throughout their whole substance by various kinds of micro-organisms, it would seem that to apply any suitable material as a capping would offer but little inhibitory power over the destructive influence of the micro-organisms. It has also been found that even in the earliest stages of inflammation, pus is often present in the substance of the pulp, together with clots from ruptured blood vessels, and no absorbents to remove the inflammatory by-products. Under such circumstances, no matter what kind of a capping was used or how skillfully applied, the results would be the same.

Inflammations run riot in the highly vascular pulp of a child and it is believed that when this organ becomes diseased from exposure or through deep-seated caries, that the best interest of the child is served by devitalizing and placing a metal filling in the cavity. It is along this line that the following method is recommended after having been tested in a sufficient number of cases to prove its merits. It is safe and simple, and the operation can usually be completed in two sittings, and never more than three (except in one case), and the filling of pulp chamber, canals and tooth cavity can be accomplished with three movements.

How to devitalize deciduous pulp has long been a mooted question. Arsenic ought not to be employed. The escharotics require numerous applications, which is also true of aq. ammonia, used as you know for devitalizing and saponifying. The same objection is made to the method of applying pledgets of cotton soaked in oil of cloves, with increasing pressure, and other means employed are objectionable because of time consumed and uncertainty of results. These things were discarded several years ago and nervocidin was used as an anesthetizing agent with most gratifying results, as it was found that usually but one application was necessary to anesthetize the pulp in a large majority of cases, and where only partial anesthesia was obtained it is believed that the failure was due to leakage from imperfect stopping of the cavity. As nervocidin is freely soluble in water, it is important that special care be exercised in confining the drug to the cavity to obtain the best results.

The following description of a typical case will serve to illustrate the method: A child, six or seven years old, is presented for relief from an aching deciduous molar. It is supposed that you have the tact, sympathy and patience to gain the confidence of this little one and are enabled to wash out the debris with warm water and carefully cleanse the cavity of softened decay and apply some non-coagulating sedative for a short time until pain subsides. The application of nervocidin is made in the following manner: Moisten a pledget of cotton the size of a pinhead and take up a sufficient quantity of the drug to cover the under surface of the pledget, or about one-half the size of a pinhead. This is applied to a spot of freshly exposed dentine (near the exposure, if there is one), as it is desirable to obtain a gradual effect of the drug. Over this application is flowed a thick paste of thymol in chloroform or a blotting paper disk to fit the floor of the cavity soaked in a saturated solution of thymol in chloroform. This is used to antagonize the irritating properties of the nervocidin, also the thymol is a powerful antiseptic and germicide, which is a desirable property should the child remain away for any considerable length of time, as they sometimes do. This has been found to be highly satisfactory, as little or no pain results from this application in deciduous teeth. The dressing is completed by carefully sealing with a temporary cement or a pledget of cotton soaked in sandarac varnish to fill about one-half the cavity, condensed with a ball of wet cotton and completed with temporary stopping. This sealing will not leak and has the merit of being easily removed. This application is allowed to remain from forty-eight to seventy-two hours and it has been the experience that when the difficulty of properly sealing was overcome and the drug confined to the cavity, that the pulp was completely anesthetized and its removal painlessly effected. In a few cases where only partial anesthesia was obtained, rather than make a second application, one-half billet of neurocaine inserted into the pulp chamber and allowed to remain about five minutes, would produce the desired result. An opening about 2 mm. in diameter is made into the pulp chamber with a sharp round bur and the bulb of the pulp is burred out and with small hooked instruments the canals are cleansed to a depth of 1 or 2 mm. During the operation the tooth cavity should receive frequent washings with a hot antiseptic solution. The contracting effect of hot water is desirable to control hemorrhage. After the bleeding ceases apply peroxide of hydrogen for its mechanical and haemostatic effect; dry the cavity and stop with raw cotton. This kind is used because it will not absorb moisture.

The following paste is employed to fill the pulp chamber and partially fill the canals: Yellow oxide of mercury, two parts; iodoform.

one part; thoroughly mixed; to be kept as a stock powder to be made into a thick paste with oil of cloves as needed.

The completion of the operation is to be accomplished with but three motions, and the following preparations are made: A crystal of thymol that will enter the pulp chamber is first placed on the table; a sufficient quantity of the above powder to fill pulp chamber is made into a stiff paste with oil of cloves, is given a cone shape and fastened to a pledget of cotton and placed next to the thymol crystal; copper amalgam is prepared in the usual way and a sufficient quantity of silver alloy is added to stiffen it, but not enough to cause it to "squeak" when mulled between the fingers, is placed next to the paste on the table. The mouth is now napkined, cavity given a final drying, and if the tooth is a lower, the pliers are heated and the thymol crystal is grasped and is liquefied and the points of the pliers carried to the floor of the pulp chamber, opened, and the cavity is instantly flooded with the medicine. If the cavity is an upper, introduce the thymol crystal into the pulp chamber and liquefy by touching with the heated pliers. This is the first motion. The second is to carry the pledget of cotton to which adheres the paste and with a twisting pressure motion fill the pulp chamber and partially fill the canals. Stick the pledget of cotton on the tooth somewhere; you can use it for a plugger soon. Now with the third motion, carry a sufficient quantity of the amalgam to about one-half fill the cavity, pick up the pledget of cotton and with a few pressure twists condense the filling and the saliva can now flood the field; everything is protected. Complete the filling in the usual way and grind off the cusps even with the highest point of the filling.

The treatment of alveolar abscess in deciduous teeth presents but one difficulty, that of enlarging the cavity and gaining access to the pulp canal. The tooth being tender to pressure and the vibration of a bur painful, usually limits the amount of cutting at the first sitting to a minimum. As large an opening as circumstances will permit should be made into the pulp chamber, followed by continued injections of a hot antiseptic solution. This is especially desirable, not only for its mechanical cleansing, but it will be remembered that the end products of putrefaction are soluble in water and this procedure is a valuable adjunct in clearing the field for medication. The hot solution should be followed by peroxide of hydrogen, used chiefly for the mechanical effect. With small hooked broaches, open and cleanse the canals to a depth of about 1 mm. Glyco-formalin is recommended as a dressing, because formalin is less irritating in this combination than in any formula with which I am familiar. The above treatment is repeated in four days. At this sitting the canals should be opened and cleansed and the depth to which you would insert a broach depends on the age of the patient. For instance, at six years, the roots of the first temporary molar have just commenced to absorb, the central incisor root about two-thirds, the lateral one-half, the cuspid and second molar roots are intact. At this second sitting, after the canals have been cleansed, pump them full of glyco-formalin, seal tooth and dismiss patient for another four days. At the expiration of that time, most cases can be safely filled as described for teeth having vital pulps. Occasionally an old chronic case refuses to yield to this strength of medication and instead of glyco-formalin, use Dr. Buckley's No. 2 formula, trikresol 2 parts, formalin 1 part. Greater care must be employed in confining this dressing than the former, and it should never be permitted to come in contact with the gums or mucous membrane. Obstinate cases are readily healed under the influence of this powerful disinfectant, and usually but one application is necessary.

The hope that the above treatment will be permanent is based on the following reasons: In the case of the vital pulp, the coronal portion is removed under anesthesia with the intention of preserving the remnants in the canals alive. These are first impregnated with the powerful antiseptic and analgesic thymol, the latter being practically insoluble in water, ought to exert its protective influence for several years. The yellow oxide of mercury was selected chiefly to give body to the paste and because it is non-irritating, it being the main reliance in ointments for affections of the eye. The iodoform, because it is non-irritating, anaesthetic and when brought in contact with tissue juices (as it will be in this situation when the apical ends of the roots are opened from absorption), exerts the remarkable properties peculiar to iodoform alone. And the oil of cloves was selected for its sedative and stimulating properties and also because it hardens the paste, insuring a high degree of stability of the application. Now if the pulp remnants remain alive, they are amply protected, but if they should die, it is believed the constituents of this paste will either inhibit entirely or so modify any putrefying process, that the tooth will be comfortable and useful. In the abscess cases, the same faith is expressed that when the pulp chamber and canals are rendered reasonably aseptic, the paste will keep them so.

In closing I wish to leave but one thought with you. Keep everlastingly at the parents to bring their children to you. Show these little ones every possible consideration. Treat their teeth and teach their minds and you will not only be doing justice to the child, but you are building for yourself a certain future remunerative practice.

AN EXCURSION INTO CEYLON.*

BY DR. AUG. STRAUCH.

Stirred to new life by the golden light of the rising tropical sun, and enhanced by the gentle rain of the closing night, the creative force and youthful freshness of the magnificent scenery around Colombo, the chief port of Ceylon, began to unfold.

Sublime indeed, is the joy of man, contemplating the mighty works of creation, which in obedience to the eternal laws of rythm and harmony manifest themselves especially in Ceylon in the extraordinary luxuriance of its vegetation and the wonderful diversity of its fauna.

He who possesses the sentiment and imagination of the lover of nature is the more uplifted by an understanding of the causative connection of the elementary forces; by his knowledge of nature and of the history and legendary lore of mankind, which have breathed into matter a portion of their own spirit.

From the hoary days of Indian mythology, through the chain of endless generations, it has been handed down even to present times, that Eden's garden was here in Ceylon; and our enlightened skepticism, weary in the honorable strife for knowledge and progress, is glad to take momentary refuge in the realm of the poetical fantasy of the races, who have preserved this paradisical belief as a precious jewel. Situated at the crossing point of two monsoons, this ever blooming wonder island is a veritable workshop of Nature. Here stimulated by fertilizing rains and tropical light and warmth, the most magnificent specimens of plant life sprout forth and make this island the garden of the world.

The spirit of a peaceful morning mood seemed to hover solemnly over awakening Nature, as I wandered from the harbor to the railway station, "Forst Station," to make an excursion to Kandy, the ancient capital of Ceylon, lying among timbered mountains and highly renowned for its temple of the sacred tooth of Buddha.

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*Translated from the German by Sylvia L. Singer.

In the heart of Colombo, a small sinuous lake, the shores of which are fringed with rows of charming trees and dense banana plants, greets our eyes. Nearby, the railroad, after leaving the station gracefully winds its way.

Many Singhalese, both big and small, mild tempered creatures of slender forms, can be seen splashing about in their morning bath and in company with them their faithful helpers in their daily toils, the black bullocks or zebus, which delight to frolic about and wallow in the refreshing waves, with their huge carts deeply immersed in the rippling surface of the water.

Uniquely constructed boats glide about upon the sparkling riplets at the caprice of balmy breezes; a scene truly idyllic in its beauty.

So high and yet so narrow are these rudely constructed canoes, that the passenger hardly finds space enough for his feet. To insure the stability of such a craft, a bamboo outrigger is fastened to one side, making it possible to venture even upon a stormy sea without danger of turning turtle. Manned by dark skinned natives, these picturesque Singhalese canoes glide along swiftly as an arrow; vanish in the shady bays of the lake or behind charming islets, upon which the feather leaf crowns of noble cocoanut trees sway high above the heads of other majestic trees.

Soon we lose ourselves in a perfect tangle of vegetation, species of which we also met with elsewhere within the tropical zone; but here its vigor and freshness, its native beauty, exuberance, picturesque confusion and coloring reaches its climax; a picture which must remain forever in the enchanted memories of us Northerners.

Glorious and imposing indeed is the scenery which lies before us. This is the Ceylon of which we have heard and read so often!

Stately specimens of the mango trees with their dark green, widely spreading foliage crowns, the bread-fruit trees with their beautiful leaves and fruits as large as melons; the cotton trees, the various kinds of fan, and feather palms, whose crowns here rest upon solid columnar stems, there sway gently back and forth on elastic, reed-like stems, the majestic giants of the forest, from whose branches hang shaggy parasitical plants and to which lianes cling in tangled masses; bamboos, bananas and different species of Ficus trees, some with columnar roots drooping from the branches to the ground, others with air roots freely suspended—all make a lasting impression upon the imagination.

In contrast to these boundless riches of nature and superabundance of plant life is the modest existence of the natives themselves. Their clayey bamboo huts lie in hidden tranquillity here and there amidst the shady palms and bread-fruit trees, picturesquely surrounded by vigorous banana, castor oil plants, paw paws and other useful plants.

Spoiled darlings of the over-generous tropics and petted into a state of childlike unconcern, the gracefully formed Singhalese dream away the sunny day or else occupy themselves picking bananas or working in front and inside of their windowless huts, whose wide door holes admit not only the daylight, but the curious glances of passers by.

Happy, brown skinned children with garments often reduced to a string of twisted cocoanut fibers round their chunky bellies frisk about or chase gayly colored butterflies.

My traveling companions are two Tamils and two Singhalese, the latter with long glossy black hair, worn woman-fashion in a knot at the back of the head, by which the typically feminine expression of the Singhalese man is still more pronounced. A round tortoise-shell comb, which it is a religious duty to wear, is their only head gear. A reddish-brown loincloth and a dazzlingly white coat, open in front, to which the brown skin of the body presents a striking contrast, complete the costume of these two friendly creatures.

Our Tamils belong to the poorest class of society, being plantation coolies, and are innocent of all clothing save a shabby cloth (rag), thrown about the loins. As if in response to my interest in them, manifested by my observation of them, they offer me with the naivete of nature's own children, a few of their black "cooly cigars," kept moist by glycerine, but so strong and acrid that after several whiffs I felt nausiated and had to gasp for air.

Two young Buddhist priests stepped into our compartment, their dignified rank recognizable by their shorn hair, shaved beards and eye brows and by a bright yellow toga which enveloped the body, but left the right arm and shoulder entirely exposed. So sacred are the heads of these priests, that no ordinary barber, but only another priest may shave them. They graciously offer me fruits and so affable are they, that one would hardly suspect that they represent a type of priesthood, which is deeply sunk in ancient superstition and devil worship.

Fear of hostile deities, gruesome demons, treacherous ghosts in the form of disease, deluges, raging tempests, etc., which afflict mankind holds the masses in its merciless grip. Thus can one readily appreciate the demand for the services of these professional exorcists. So intense is this base and grovelling superstition, that even native Christians, in their perplexities and distress secretly take refuge in this heathen practice of exorcism.

Thus my two fellow passengers may be called upon to drive the evil spirit out of a poor cripple by pounding, pressing and kneading him, or to chant away by some powerful formula the bad spirit from the body of a zebu, or they might even undertake to cast out the spirit of stupidity from a wretched idiot by massaging his head.

As our train rolls along open plains, swampy rice fields alternate with wide spaces of high luxuriant swamp grasses and jungles. With bodies half immersed, black zebus wade through the morass, and like monsters, suddenly dashing forth, disturb the dreamy peace of the large-leaved lotus lilies (Nelumbium Speciosum), which with their snow-like or rose-colored blossoms shine out here and there from the dark surface in social communion. Like beautiful, large fairy eyes do these queens of the equatic flowers hold us spell-bound and convey to us the magic attributed to them by myths and legends.

Exposed to the intense rays of the sun, naked coolies stand up to their knees in the fallow rice fields and turn over the marshy soil.

The tepid water of the swamps, teeming with tiny creatures, serves as a brooding place for myriads of mosquitoes which after the sun has set, hover in thick swarms over the stagnant waters, a menace to mankind. For certain species of these gnats transmit by means of their probosces, the germ of the much dreaded malaria, a disease which particularly in the tropics is widely spread and assumes a very severe form.

Malaria and the meteorological conditions of the tropics are the great obstacles to the acclimatization of the white race. Without a continuous influx of newcomers, a succession of generations of the unmixed white race could not endure, for as is generally known, European families usually die out in the second or third generation. This phenomenon of the extinction of the white race is principally attributable to malaria, which however, in the light of our present knowledge, with modern prophylactic means can be controlled with a certain degree of success. Still as yet the adage: "white heads and black hands," holds good, when it comes to the cultivation of the tropical lands.

Wherever there is a knoll of earth arising from the vast swamp, picturesque, gardenlike villages appear, consisting of quaint little cottages and barns, surrounded by cocoanut and areca-palms, jack fruit trees, banana bushes and other useful plants, all of an intensely tropical green, the uniformity of which is somewhat relieved by the red tiled roofs, the crimson and yellow garments of the natives and by their naked brown skinned children.

We cross the Kelany Ganges river, the greatest stream in the island; upon the surface of its waters native house-boats drift about in great numbers.

At the waiting stations of the railway, cocoanut milk is sold as a refreshing beverage; unripe, green or yellow cocoanuts, with the husk still soft, are by a clever stroke of a knife cut off by the seller at one end and forthwith offered to the passenger, who sips the delicious milky fluid from this natural goblet. A King cocoanut, costing one and a half to two cents, yields over a pint of this delicious beverage, which because of its freedom from disease germs, is highly recommendable in the tropics.

Another Tamil steps into our compartment. A cloth about his loins and some white material tied turban fashion around his head, complete his costume, while a piece of the giant leaf of the talipot palm serves as a parasol.

The train commences its grand ascent toward Nuwera Elya, to the height of over 6,000 feet. From Rambukkana, two engines toiling with tremendous force, drag the train up the flank of the Allagalla mountain, whose lofty peak, crowned by a steep precipice, which projects boldly into the blue ether, holds dominion over the mountain chains, between which lie wonderfully prolific valleys.

From this summit the old kings of Kandy would hurl down into the abyss below, those whom they suspected of treason. We enjoy a glorious view of the great De Kanda valley, beautiful beyond description in its green exuberance; bathed in a wealth of sunshine and bordered in the distance by hazy, blue mountain chains with the proud Adam's peak as the pinnacle. Down in the valley lie terraced rice fields, many of them completely under water, and presenting a strange aspect from a distance.

While the rice thrives in these marshy lowlands, the tea plantations are higher up on the dry declivities of the mountains, growing in forests of stumps, where they form small patches, scattered among masses of wild vegetation.

Tea culture has largely supplanted that of coffee, for since the eighties, a fungus generating leaf blight, has steadily destroyed once blooming coffee estates.

Only the successful change to the cultivation of tea and the rapid increase of its exportation has saved the land owners from an economic catastrophe.

Our train hurries through romantic mountain forests with rushing waterfalls, upon which the glorious tropical heavens have poured with great prodigality a flora truly fairy-like in its variety and richness: an inspiration for the artist, a vision for the dreamer, the supreme goal for the botanist and the joy of every lover of nature. Every now and then we see ant hills of red earth over four feet in height, generally bare, but sometimes covered with a scanty growth of vegetation.

At eleven o'clock we arrived at Kandy, the old capitol for whose possession Singhalese, Portuguese, Hollanders and the English had fought; the religious center consecrated forever to the memory of the founder of Buddhism and by virtue of the sanctity of its temple the heart of Buddhistic sentiment in Ceylon and the mecca of Buddhists from the remotest corners of the Asiatic continent.

The huts and houses of this town together with its small lake are buried in foliage and are embossomed in a chain of hills covered with blossoming groves. In the distant regions of the central highlands roam herds of wild elephants, the monarchs of virgin forests. Encircled by a pleasant driveway, the lake is shaded by majestic palms and other trees and its crystal-like surface reflects with wonderful effect the deep azure of the sky shining through the feathers of the palm leaves.

After a drive around the little lake, I visited near its shore the famous temple, Dalada Maligawa, which contains the sacred tooth of Buddha.

Kings and priests of Burma, Siam and Kamkodge used to send sacrificial offerings and gifts here as an annual tribute and in India, China, Thibet and even in Japan, the mention of the sacred abode of the precious relic fills the souls of the priests and monks with deepest veneration.

Richly decorated with sculptures and pinnacles, a solid stone wall encloses the temple and its additions which serve as residences for the many Buddhist priests and for the religious cult. Skirting the wall is a trench in which sluggish tortoises bask and fish, and other water animals stir about, all consecrated to the deity. This we pass and stepping through the massive stone gate of Indian architecture, covered with reliefs from mythological subjects, we reach the court yard. The wall in the hall of one of the buildings is decorated with hideous, illy executed frescoes of ghastly fantastic figures of devils and sinners, who are being tormented in the flames of hell, representative of the various forms of punishment in the Buddhistic hell. The most gruesome tortures are inflicted upon those who plunder a Buddhistic temple or rob a Buddhist priest. Fierce demons armed with enormous chopping knives and hatchets, hack to pieces these temple plunderers, who wind themselves in convulsive distortions. Horrible is the punishment of those who have dared to injure a sacred Buddha tree (Fiscus religiosa), and not less gruesome is that of common thieves or of disobedient children.

One picture shows how liars are repeatedly driven by merciless fiends to scale the steep flaming rock of hell, only to drop exhausted from its summit into the very depth of the flames below. Adulterers, of both sexes, as represented by one frescoe, are made to climb a tree, thickly studded with iron spikes, from which they fall into the blazing fires below.

Each punishment is represented by a separate picture for example as that for suicide, for murder, for slaughter of animals.

Here we have intensified the toils of Sysiphus; a frantic pandemonium, a demoniacal orgy, which could indeed through terror and fear, paralize the ruthless hand of a greedy temple plunderer.

In the middle of the court stands the temple, which contains the priceless relic, Buddha's left eye tooth, which was recovered from the ashes of the funeral pyre about 2,500 years ago. The sacred tooth is said to have been brought from India to Ceylon in the fourth century, to have been returned to India about 1,000 years later; finally to find its way back again to Ceylon, where it was kept in concealment until the Portuguese succeeded in obtaining it, when it was burned by the command of a bishop in Goa. As a substitute, a new tooth has been carved from a piece of ivory and is passed off for the genuine one, although, being two inches long, it would better fit the jaws of a crocodile than that of a man even though he be a superman. Yet this fact does not shake their belief in its genuineness, for, they argue, the sacred books record that Buddha was eighteen feet tall.

Indeed the gigantic dimensions of their mythological creatures exceed even those of the monsters of early geological epochs.

Only upon rare occasions is the sacred tooth exposed to view and public worship, and that only from a safe distance.

The temple is rectangular in shape and architecturally insignificant. The outer surface of its windowless walls is copiously decorated with variegated primitive pictures of cats, rabbits and other animals of the Buddhistic mythology, as well as with representations of suns and moons, betraying the fantastic spirit of astrology. Two stone lions guard the stairs at the entrance, its sides flanked by giant elephant tusks.

The elephant, as is known, is the typical heraldic figure of Ceylon, often appearing in the various works of Indian and Ceylonese art.

The elephant is highly esteemed as a symbol of the Buddhistic religion, since it is the form in which the spirit descended upon the dreaming Maja, to touch her right hip, whence Bodswita was to be born in glory. Especially are the rare white elephants, a species of albino, honored and given the rank of royal highness. They are housed in magnificent halls and the attendant, kneeling, has to serve their meals in silver dishes.

In the temple I was shown numerous statues of Buddha, all of a stereotyped apathy of expression.

In an octagonal, pavilion-like annex to the temple, which is the treasure house for the valuable oriental literature, are gathered a number of priests. Lying on a table are many highly interesting Buddhist bibles, huge volumes consisting of hundreds of narrowly cut leaves of the talipot palm (about ten inches long by one and a half inches wide), laid together lengthwise and tied at one end. Each leaf contains according to its shape, but a few lines, finely etched in dainty round Singhalese lettering. As a souvenir, I received some of these biblical leaves with religious stories.

From the height of this building, we look down upon the "Adam's place," a little terrace, where Adam is said to have been, and we catch a glimpse of a holy Buddha tree, on the branches of which scraps of paper are fastened, containing prayers of request and gratitude.

Nearby, resplendent in the glare of the sunshine, in the midst of dark tropical verdure stands a white Daghoba, a cupola as we have often seen them near temples and sacred Asvhatta trees. A Daghoba always—it is alleged—contains relics of a saint.

It might be well to mention here, that beneath the shade of an Asvhatta tree Buddha is believed to have learned the vanity of existence and the mystery of the universe. These trees belong to the largest on earth; near the village of Dena Pitya, in Ceylon, for instance, stands an Asvhatta tree, in the shade of which a village of more than one hundred huts is established.

From our point of vantage the kings of Kandy would behold the fairy-like pageantry of innumerable pilgrims. From far and near, from Ceylon and the remotest parts of Asia, pilgrims used to meet here, carried away by the mighty surf of religious ecstasy, to celebrate the highest festivals of homage to the sacred tooth.

Endless multitudes, races of various color, priests in gorgeous vestments would throng toward the temple, parading with great pomp and splendor in costumes characteristic of oriental fantasy. Dazzling in a kaleidoscopic profusion of gold ornaments, decorations, gems and religious insignias, a veritable symphony of colors—thus flows the human tide.

Imposing specimens of elephants adorned with gold embroideries and jeweled coverings of the richest quality stride along under canopies, carrying gold statues of the god on their backs. The composure of the animals in the midst of a sea of thronging humanity, the confusion of voices and the chaotic sounds of instruments might impress the beholder as if they themselves were conscious of the dignity and importance of their office. But they too sink to their knees, when the holy of holies; the sacred tooth of Buddha appears in the temple gate, carried in a shrine on the back of an elephant.

Blue clouds of incense ascend skyward and blend with the balmy fragrance, which is carried down from the hills by a gentle zephyr, to enchant the senses of men like music. Thus human nature, ever fond of pomp and display vies with the beauty of the outer creation.

After a visit to the ancient palace of the Kandian kings we made the round of the town and repaired to the well-known botanical garden of Peradenia, possibly the grandest on earth as to tree culture. Indeed one must be in Peradenia to appreciate the great luxuriance and beauty of the tropics! Here grow various spice trees, cinnamon, camphor, clove and nutmeg; cocoa, quinine, tea, coffee, vanilla, pepper; ebony, mahogany, and big leaved bananas, shaded by bread-fruit trees and grasses as tall as trees.

Various specimens of giant ficus, their trunks covered with carpets of variegated blossoms of a thousand parasitic and epiphytic plants, send down to the ground numerous columnar stems from their branches, often like huge pillars. Strolling along shady avenues, we gaze up with amazement at the cylindrical trunks of gigantic bamboos, more than two feet in diameter, by the side of which man dwindles to the size of a pigmy. They are an example of a most rapid growth, for exact measurements proved the remarkable fact, that during the rainy season they increase several centimeters an hour.

India rubber trees, towering 100 feet into the air, spread huge "tabular" roots, longer than the trees are high, creeping over the surface of the ground like serpents and crocodiles. Wonderful groups of palms with their multiform crowns of huge feathery or fanlike leaves reach skyward; among them the cocoanut, sago palm, oil palm, areca palm and the Palmyra palm, which according to a beautiful Tamil poem, serves 801 different purposes.

The queen of all palms, however, is the magnificent Talipot palm (Corypha umbraculifera), which is celebrated as possessing the largest leaf blade, measuring as much as twenty to twenty-four feet in length and from fifteen to eighteen feet in width. Only once in its life—like the American Agave—does this palm bloom. It pushes up a tall spike of white blossoms forty feet above its crown of fans, the greatest and perhaps noblest inflorescence of all plants on earth; as soon as the numberless blossoms display their magnificent beauty, the gigantic foliage leaves below begin to fade and the tree having finally scattered its nuts, dies down after this supreme effort to continue its kind.

Majestic trees form a dense canopy of foliage in which luxuriate various orchids with brilliant flowers; aroids, with clusters of hanging aerial roots and with curious leaves and other varieties of epiphytic and parasitic plants. Here rise giant creepers in incredible confusion up to the crowns, span their cord and ribbon like stems from branch to branch like garlands or hanging bridges and throw themselves over dense ground plants, from which arise the fern trees, imposing because of their huge palm-like crowns of pinnated leaves.

We are amazed at such a wealth of draperies, arcades and walls of flowers and foliage! All seem to climb, to wind, to be entangled, and it is difficult to ascertain, which flowers, which stems, which foliage, belong to which. In more open spaces masses of sensitive plants (Mimosa pudica, sensitiva), form extensive scrubs; their delicately pinnated leaflets, when touch with a stick, shut together instantaneously, as if frightened, and the menacing thorns, which until then have been hidden, become apparent. Not until we have moved away from the immediate vicinity, and complete stillness reigns once more, do the folded leaflets spread out and turn their upward surfaces skyward again.

Beholding the grandeur of such phenomena of vegetation, I recall Humbold's matchless poetical and thrilling descriptions, inspired by the deepest enthusiasm for the study of nature, of the superb scenery in the tropics with its immortal forces of organic life and eternal youth.

PROCEEDINGS OF SOCIETIES.

WISCONSIN STATE DENTAL SOCIETY MEETING AT MILWAUKEE, JULY, 1909.

DISCUSSION OF THE PAPER BY DR. O. H. FOERSTER ON "MANIFESTATIONS OF SYPHILIS IN THE MOUTH."

Dr. R. G. Richter: Before entering into the discussion of this paper, I wish to thank the essayist for the thorough manner and comprehensive way in which he has described and shown us the different phenomena of syphilitic manifestations in the oral cavity.

In discussing the paper, I shall confine my remarks more to the practical points that are of greater importance to our branch of the medical profession, and which the essayist intended to help us in the protection of ourselves and patients against inoculation of this disease, which, as Dr. Peterson puts it, is of insidious onset, treacherous and uncertain course, and of quite incalculable damage to its victims and through them to the race.

We, as dentists and stomatologists are, very seldom, consulted during the primary stage of the disease, excepting in cases where inoculation has taken place in the mouth or on the lips, either from infected instruments or other modes of transmission. The primary sore or chancre appears at the point of infection and often is mistaken for some less treacherous lesion. When we consider the frequency of the occurrence and communicability to others of syphilis, it becomes important that we regard with suspicion any lesion of the mouth, in the form of an otherwise unexplained ulcer, pimple, or papule, especially those that are obstinate in healing, should be watched as possibly a chancre.

The diagnostic features of a chancre have been shown and explained by Dr. Foerster. Syphilis is a systemic disease that attacks all parts of the body, but particularly the mouth in the secondary and tertiary stages. In the mouth there are often predisposing causes as to the point of infection and location of the chancre or secondary sore, such as jagged, sharp edges of teeth, deposits of calculi, ill-fitting plates, cracked lips, cold sores, or any condition that causes an abrasion or cut in the mucous membrane, thus making an opening for the infection to enter. Chancres forming at the neck of the teeth, on account of particles of food lodging there and decomposing, and other infected and irritating material, very often undergo mixed infection and ulcerate, which disguises their typical appearance and makes a diagnosis difficult, and not until the covering of pus and other stuff is wiped off and the characteristic appearance of chancre brought to view can we be sure that it is really a chancre. When it is definitely determined that the sore is of syphilitic origin, no time should be lost in resorting to specific treatment to check the progress of the disease. The treatment of syphilis, on account of its various manifestations, belongs more properly to the specialist than to the family doctor. In the secondary stage the whole system has become infected, and we have many and varied manifestations, as you have seen this evening, making the diagnosis sometimes very difficult, which difficulty is increased by the patient's anxiety to conceal his condition. They will often deny that they have acquired the disease, thinking it out of our province and no business of ours, until they are told of the dangers of infection, when they will generally own up. It must be remembered that this period is the most dangerous for the transmission of the disease to us and our patients. These sores are so varied and different in appearance, sometimes seeming almost insignificant, that they are liable to be passed over as of no consequence; yet when the history is known they are found to be of syphilitic origin and very infectious. A positive diagnosis is frequently impossible, excepting in the history of the case and other signs of syphilis, such as enlarged glands, etc. The safe method in all suspicious cases is to presume that they are syphilitic and take our precautions accordingly.

Concerning ourselves, we should see that there are no unprotected hang nails, cuts or abrasions on our fingers or hands, and that we touch no part of our body with them until they have been thoroughly sterilized, nor allow any cloths or napkins which we have used to do so, for there are cases on record where the disease has been transmitted from one person to another by the use of a handkerchief.

As regards precaution to our patients, all our instruments, and, in fact, everything that comes in contact with the patient, should be thoroughly disinfected before used for another patient, and cloths or napkins should be burnt or otherwise destroyed.

In the third state, where the bones have become affected, we are sometimes called upon to remove necrosed portions and supply the lost parts with plates and obturators.

As the sequel of syphilis, we find many pathological conditions, a few of the most important of which I want to mention. In cases where large doses of mercury and iodid of potassium have been given for a long period after the constitutional luetic condition is under control, in the fruitless attempt to cure a lesion which is no longer syphilitic, we often find the alveoli or gingivae suffering from mercurial poisoning and producing what may be mistaken for an ordinary case of pyorrhea. We also find lukoplakia, a disease of the mouth, which, until recently, has been seldom mentioned in medical works or journals.

The fact that in the progress of our work we examine more mouths than any other branch of the healing art, gives us the greatest opportunity to discover this disease in its early and incipient stage, and to warn the patient of his danger, for it very often is a forerunner of cancer, and should never be overlooked.

As the result of hereditary syphilis, we often find malformed and misplaced and irregular teeth. The so-called Hutchinson teeth are not always the result of syphilis, but since the cause of these malformations is the arrest of food supply to the parts at their formative period, that may also be the result of any of the exanthematous diseases of early childhood, or any condition that produces malnutrition.

In conclusion, I would lay particular stress upon the fact that in all suspicious cases, we should exercise the utmost care to protect ourselves and patients from inoculation.

Dr. Arthur Holbrook:

I want to ask Dr. Foerster if he will state to us whether he intended to cenvey the idea that all malformed teeth of early childhood are due to syphilitic taint? There are a great many teeth, we have told our paients, whose malformation was occasioned by infantile diseases; arrest of development for example which might come from any infantile trouble.

Dr. W. C. Wendel:

I would like to ask Dr. Foerster a question, that is, where we have a number of children in a family and we find the so-called Hutchinson teeth and these conditions are present in one child and not present in another, or in one or two children in the family and not in the others, how is that accounted for? There is one peculiarity about it and that is we invariably find the teeth are defective in the central incisors, the laterals and occasionally the cuspids.

Dr. O. H. Foerster:

I would say that not all deformed teeth are by any means syphilitic teeth, but there are certain deformities that are very suggestive of syphilis. The constitutional effect of syphilis is active during the first three months of extra-uterine life, when the growth detracting factor is given to the teeth in the process of development; it is at this time that syphilis has its influence. Rickets is another disease which, of course, has influence on teeth, but what I wish to state particularly is that there are certain types very distinct; definite types of arrest of development or deformity of teeth, which are assignable to syphilis.

As to Dr. Wendel's question why one child in a family has and another has not so-called Hutchinson teeth, I think we can answer in this way. There are a great many children born in syphilitic families who never show signs of syphilis. The first or second child may be born dead and to all appearances perfect. Another child may be born with manifest evidences of syphilis. Other children do not show any signs of syphilis until they are twelve or thirteen years old, when they will. Or they may show some peculiar disease of the eye and may show Hutchinson teeth. A child may be syphilitic and not show Hutchinson teeth. The particular constitutional effect of the disease may not have been sufficient to affect the growth and development of the teeth. One child in a family may be the last child in that family that will ever show signs of syphilis, because the syphilis may have run its course in that family.

Another child may be born after that child with Hutchinson teeth and that child remain perfectly well.

DR. W. C. WENDEL:

The last child was the one that had the Hutchinson teeth.

DR. O. H. FOERSTER:

It is possible that infection may have occured after the other children were born.

The woman of whom I spoke who had the large defect in her palate and had for a number of years gone around with an ordinary ball of cotton twine stuck into this defective place; this woman had never had any of her children show signs of syphilis. I examined the teeth of the children and found no signs of syphilis. It does not always affect the teeth. The bones of the lower leg may be bent at a lower angle. In one instance it may show itself in peculiar types of mental disease or in such afflictions as epilepsy, but not all deformed teeth are syphilitic. There are teeth due to rickets which may simulate Hutchinson teeth. By exercising judgment and discrimination and laying stress on one or the other factor that one sees he can determine the presence of the disease.

DR. E. A. GEILFUSS:

I would like to ask Dr. Foerster whether the presence of Hutchinson teeth should lead one to presume the presence of other defects which ought to be looked after? Whether it can be taken as a diagnostic symptom of other conditions which ought to receive attention; that is the mere fact of their presence without other defects?

DR. HOPKINSON:

I would like to ask whether we are to understand that the Hutchinson teeth appear more in the deciduous set of teeth than in the permanent teeth? Whether during the first three months of extra-uterine life it would affect the deciduous teeth; if after the first three months, the permanent teeth? Now, all dentists know that there are a great many people who come to the dentist for irregular atrophied teeth. If we took that as a diagnostic point, we would have to tell a great many people about this serious disease, because I think myself, the majority of people have some atrophied teeth in their mouth.

Dr. O. H. Foerster:

Answering the last speaker first, I wish to again lay stress on the fact that not all atrophied teeth are syphilitic teeth. Hutchinson's teeth are always teeth of second dentition. Their calcification begins during the first three months of extra-uterine life and consequently this particular characteristic is impressed upon it at that time. The incisors of the first dentition are various types of atrophy. They wear away very rapidly. It may be due to rickets and due to other infantile affections, but the fact that we have a very characteristic type of tooth in the upper central incisor of the permanent set is the characteristic of the Hutchinson's tooth.

As to Dr. Geilfuss' question, whether it is necessary to look for other signs of syphilis in the presence of Hutchinson's teeth, I may say that it is a wise thing to do that. Try to confirm your diagnosis by an examination of the cornea, test the individual's hearing; look for other evidences that we know to be due to hereditary syphilis. It is possible that the only one will be the Huthinson's tooth. It may be possible that some other cause has produced a condition simulating the Hutchinson's tooth, and it is very necessary to bear in mind that the characteristics are very definite and well defined before entering on any course of treatment or in any way entering or violating the confidence of the family.

Dr. George V. I. Brown:

It seems to me that we are in danger of sidetracking a very valuable paper in the discussion of a comparatively unimportant point.

I think you will all agree that it would not be altogether possible to have a typical tooth for every particular kind of disease, that might affect dental development, and although many syphilitic people have typical Hutchinson's teeth, these are after all nothing more than the result of perverted or arrested development. There are many causes of perverted and arrested development, just as syphilis is one. These teeth often are associated with syphilis, but I do not think anyone would dare to say that they are always and invariably diagnostic symptoms.

I consider it a very rare opportunity, an exceedingly great privilege to have been able to hear this subject covered as it has been tonight by one who specializes in the treatment of skin and venereal diseases; to see these beautiful slides so artistically prepared, giving us as they do the best possible idea of the actual appearance of buccal syphilitic lesions.

I think my friend Dr. Richter, however, has sounded the keynote when he says the thing to do is to leave these cases so far as possible to the specialist. As the slides appeared you all doubtless wondered what difficulties you might have had if you had advised all of your patients whose mouths, in some degree, resembled those illustrated that they were afflicted with syphilis and had so treated them, instead of having given good plain thorough treatment, whereby a great deal of unnecessary trouble and anxiety was saved them. The point of it all is that most of these lesions are indications that should give warning that we are progressing in the right direction or that we had better prescribe other methods. We certainly ought to be very careful about making diagnosis of syphilis. On the other hand, we should not take unnecessary chances, and the proper thing to do is to call in consultation in all doubtful cases whenever we can, for one who is seeing just such patients all the time is naturally a much safer judge than one can possibly be who only sees them occasionally.

The danger to ourselves and to our patients, it seems unnecessary for me to elaborate upon. The only way that I know of is to get the best possible advice we can have—and that is always from the specialist on such diseases.

Dr. Maercklein:

Mr. President and members of the State Society, I haven't much to say on this subject; the essayist has covered it very thoroughly and completely and has certainly given us a very beautiful expose of the characteristics of the disease as they occur in the mouth, for which we all, I think, are particularly thankful.

In perhaps an explanation of a few of the questions that have been asked, it might be of value to state that in Pfeffer's Statement of Medicine, the subject under discussion is covered; that is, how it is possible in families for some children to be afflicted with Hutchinson's teeth while others are not. Considerable space is devoted to that chapter and among other things the statement is made and the rule laid down that you can prevent children from being afflicted by the symptoms if both parents are put under an anti-syphilitic treatment prior to conception. The child will then be free from the symptoms;

and then again by allowing the parents to contract the disease again, they will produce syphilitic offspring. That will explain some of the questions asked here this evening.

Another point I wish to make in regard to the peculiarity of syphilitic teeth—so-called Hutchinson's teeth. We have to touch on the embryology of the tooth, and the great majority of us do not understand the embryology of it.

If you take a true Hutchinson or syphilitic tooth, you will generally find that it tapers to the anterior edge. Now, if any of you have made a study of the tooth, you will find that the dentin is almost perfect on its sides in almost all of the teeth.

I would like to ask Dr. Foerster to tell us what he believes the present status of the question as to whether the spirocheta can be detected with sufficient uniformity in blood of syphilitics. The fact has been beautifully brought out in the paper between the similarity of these and the other forms and I would like to know what the latest is on that particular question.

Dr. Foerster:

I would like to say that this is a very difficult thing. The detection of it in serum extracted by means of a suction cup from some lesions of syphilis will yield a harvest of spirocheta. I had hoped to show you tonight a demonstration of the living organism. It is so characteristic that if one has once seen a number of them, he cannot make a mistake in the future. Of course, from lesions in the mouth we must be sure to exclude all extraneous matter and obtain nothing but the serum. If we have no contamination, we can then find the spirocheta in plenty as a rule. In closing the discussion, I wish merely to express my thanks to you all for listening so attentively to this paper and to those also who so cleverly discussed it. I have learned a good deal from the discussion and was glad to see the lively interest that was taken.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held December 6, 1909, with the vice-president, Dr. C. N. Johnson, in the chair.

Dr. C. N. Johnson read a paper entitled, "Some Phases of the Pyorrhea Question."

DISCUSSION.

DR. GEORGE W. COOK:

This paper has impressed me very deeply. The author has dealt with the subject from the point of view that I look at it. I have said so much about pyorrhea in the past that it seems to me to talk at length upon it now would be out of place. The essayist has opened up an interesting field for differential diagnosis in these cases and I wish to refer particularly to those cases in which there has been a gradual absorption of the alveolar process without the formation of of pus. There are many cases in which degeneration of tissue takes place, but where pus is not present to the naked eye, yet if we examine the tissues very carefully and closely we will find micro-organisms present which have extended farther into the tissues than we would think. In just such cases the action of the bacteria on the tissues is purely a degenerative process. There is not a constant or sudden breaking down of the tissue, but a gradual diversion of the tissue from a normal to an abnormal state.

There is a disposition on the part of the tissue cells to remove the bony structure that has been involved which contains bacteria. My observation has been that wherever there is a process of this kind going on, if the tissue is removed or a tooth extracted we will find that the peridental membrane has been involved. Furthermore, the peridental membrane itself contains bacteria beyond lines where we would expect to find them ordinarily. If in these cases with treatment we can bring about a fair removal of the diseased structure, and sometimes we can do this very well with the use of sulphuric acid or phenosulphonic acid, we can accomplish more than a great many practitioners are disposed to think.

An important point in the paper is with reference to what cases shall we ignore, what cases shall we condemn and what cases shall we consider curable, or which can be benefited by treatment?

I do not believe personally that there is any case of pyorrhea in which the tissues are so much involved as to destroy a good deal of the bony structure around them where the teeth can be saved. Of course, those cases where there is a cushion-like movement of the teeth are hopeless, but in almost every case outside of that class, I believe the teeth can be made useful and the patient made comfortable to a greater degree than has been done before, if the same precaution and pains are taken as in cases of gingivitis. The treatment of these cases must be largely mechanical and if in performing mechanical operations we can remove as much of the diseased tissue as possible, we will obtain very good results. Of course, in some cases the tissues are involved more extensively than we think they are. There may be a tendency to degeneration of tissue which we cannot very well make out, nor even guess at. We can only determine this by microscopic examination and if you make such an examination of the tissues and of the parts by removing portions, you will find perhaps a number of teeth involved. If you remove one tooth and treat the others in some instances you will get better results than you anticipated. The treatment of pyorrhea is difficult. It is one of the most difficult conditions to treat with which the dentist is confronted, in that it requires a large amount of time, care, patience and skill. The pathology and bacteriology of pyorrhea alveolaris involve so many phases that it is almost impossible to state what they might mean.

The systemic conditions have been alluded to. Systemic conditions mean the possibilities of bacteria entering the tissues. In other words, the tissues have lost their resistance to certain forms of bacterial action and there may be one of many bacteria involved in the process. Wherever we find pus, we may depend that there are two or more bacteria which play an important part in the pathological process and that these bacteria can be readily found in the tissues by microscopic examination. Sometimes they may be quite remote from the seat of infection.

DR. ELLIOTT R. CARPENTER:

I consider the paper we have just listened to one of the most forceful that I have ever heard. It deals in a masterly way with positive facts, all of which I believe. As I believe in everything that Dr. Johnson has set forth in his paper, I find it very difficult to make an intelligent discussion upon it. I believe pyorrhea, in a very large percentage of cases, can be cured by skill and intelligence, but it cannot be cured by the skill and intelligence of the operator alone. One of the things that the dental profession has got to become thoroughly imbued with is the education of their patients in regard to this disease.

In the last few years of study and work along this line I have come to certain conclusions. It was my original attempt to try to save all teeth affected with pyorrhea, but I have found out that this was a great mistake. In certain mouths pyorrhea has become very markedly advanced and in such cases it is better to remove some of the teeth than to try and save them. Let us take two teeth which stand side by side with a deep pocket between them and one of them considerably loosened on account of the cushiony condition of which the essayist spoke. For the life of the other tooth, I would remove the one that was cushiony. There are some instances in which the teeth are fairly solid and the pocket of such great depth that we can sacrifice one of these teeth and get better results than working into a deep, narrow pocket. The question of splints or fixtures for holding teeth firm or in replacing lost teeth, etc., is a very important one. I do not think such methods have been practiced as extensively as they should be. I call to mind two or three cases where I would have done a great deal better, if, instead of making two abutments, one at either end of the space to restore the lost tooth, I had taken in an extra tooth to help stay the one next to the space.

I find it impossible to discuss this paper without having made some preparation. It contains so much of value and I am so thoroughly in sympathy with all of the points that have been brought out.

Dr. J. G. Reid:

This is the third time within a period of twelve serial meetings of this society we have been called upon to discuss the question of pyorrhea and each one of us has gone upon record each time. In the meantime I cannot see wherein I have been any better equipped to carry on the work of saving teeth that are afflicted with this disease than I was two or three years ago. We meet this condition every day and it would seem to me as if pyorrhea is a progressive disease and is on the increase. There are one or two things which impress me in connection with this disease, namely, either we see more of it or more people are interested in it. If we find that more people are becoming interested in it, naturally it becomes apparent that we must become more interested in trying to arrest the disease. In other words, we must be more fully equipped to combat the increase of it. The paper appeals to us as a body and to the profession in a very strong manner and the expression of the essayist is a warning for the profession generally. It strikes me that the apparent prompting of the essayist is a stronger appeal to the profession generally to be on their guard to equip themselves in the way of rendering more valuable and useful services to their patients in the practice of dentistry. I am satisfied that if there is the slightest movement in a tooth by occlusion or by the movement of the lips or the tongue, there is very likely to be trouble sooner or later. The tongue is a nasty organ in the mouth when we come to think of it with reference to moving teeth that are affected with pyorrhea. I have lost a tooth myself in the last year or two and I can see very well how the teeth are lost by the eternal movement of the tongue. I believe the tongue itself is guilty of doing as much damage by moving sore teeth as the natural occlusion of the teeth. It becomes necessary to anchor a loose tooth if you want to prevent its movement and it is very essential to anchor it early in order to get beneficial results.

I have a case of two lower central incisors on hand at present which is puzzling me very much. The occlusion is an end to end. The first time the individual came into the office I ground off the end of the tooth so that it would not touch. This woman will not let the tooth alone. She tries to move it with her tongue constantly. I told her that if she would let it alone it would be all right, although I have not anchored it. I see the necessity, however, of anchoring it. She does not wish me to anchor the tooth because she will not permit me to put any appliance on it which can be seen. She says she would rather lose the tooth than to have me do that. I have told her that the only hope of saving this tooth is for her to keep her tongue away from it. She has been trying to do that in the last month or so and since then I have noticed considerable improvement in the tooth. She told me that she had quit rubbing the end of her tongue against it to see if it was getting tighter. So I have really been very much encouraged in this case in the last three or four weeks. I have been making attempts to save and to tighten this tooth off and on for the last five or six months, yet I do not believe I shall be able to save it. I am satisfied, however, that I have done all that a skillful dentist can do to save such a tooth. The occasional medication and stimulation of such teeth will sometimes enable us to tighten and retain them, but I believe the secret of the preservation of a great many of these teeth lies in anchoring them by some kind of appliance in their incipiency wherever there is the slightest movement. We are no further advanced in the local or systemic treatment of pyorrhea than we were half a decade ago. However, I believe we are learning to be more skillful in the removal of deposits around teeth and instruments are being devised which will enable us to remove these deposits more readily. The best we can do is to make use of thorough instrumentation and impress our patient with the importance of faithfully carrying out prophylactic measures.

Dr. L. L. Davis:

Were it possible for me to formulate my ideas with the lucidity and word power of the essayist of the evening, I think that his essay and my essay on the same subject would be almost verbatim. I do not know that I have ever listened to a paper on pyorrhea that seemed to formulate almost every idea that I have in regard to the subject, so well as this one. On that account, there is very little for me to discuss, because Dr. Johnson has said what I would like to have said in just as nice a way as he has done. There was one point he brought out with which I heartily concur and I believe I have reiterated it on a number of occasions, namely, that the average dentist does not seem to recognize pyorrhea, or else he is too lazy or incompetent to care for the cases that come under his observation. Within the last two weeks a lady of means, a woman willing to pay well for professional services, came to me because her dentist had sent her to an extraction specialist to have five teeth removed that he decided could not be saved. Two of these were upper laterals on either side and those teeth hung down so that they stood over the lip. When she came to my office my first impression was that she was wearing an artificial denture, and that the tissues had become absorbed and these two natural teeth stood below the artificial denture. She told me what had happened, that she was referred to an extraction specialist by her dentist, and after going there and having one tooth removed she weakened and would have no more teeth extracted. It was after talking with one of my patients that this lady came into my hands. The tooth which was extracted was better than any other tooth she had in her mouth. There is not a tooth in this woman's jaws that cannot be saved. She is only 32 years of age. She has an end to end bite, and the teeth are separated underneath throwing them out of line. I have cited this case to emphasize the importance of one of the points made by the essayist this evening.

There is another condition I want to speak about, one which I mentioned in a previous paper. The patient who presents this condition has been under my observation and care for nearly twenty years. He has lost two of his molar teeth and a third one in the last month is beginning to go in the same way and that is a bay-like excavation on one of the roots of the molar tooth. It is not a pyorrhea. It is not a carious condition, but a cupping out of the root itself with sharp edges at the side. It is down below the gum and you cannot see it. The root is so very loose that the whole tooth seems to be involved. In the upper jaw I have amputated the lingual root of one tooth. The first thing I did was to destroy the pulp in this tooth. I decided that if I could do anything to save the tooth it would be well to destroy the pulp first, because the pericementum was so inflamed from irritation. There are probably four of these bay-like excavations or saucer-shaped cavities in the side of the root. When a young lad he lost a bicuspid in front of the first molar in the lower jaw, so that I have had a good chance to get in there and have been able to press the gum away and to have a beautiful outline of the root. He has been under my care for two or three weeks. I first drilled in there and destroyed the pulp, using cocain, trimmed off the sharp edges and painted the surfaces with nitrate of silver. It is not quite deep enough to put in any filling material and the excavation extends down to the apex of one root, and the root I amputated in the lower jaw showed the same condition. He lost one bicuspid a number of years ago. I have not seen this peculiar condition of things in any other patient.

I have another case which some of you have probably seen. It is the case of a doctor. When he first came to me a month ago he said he had been to eight or ten dentists and five of that number told him that his trouble was pyorrhea alveolaris. One of these dentists resorted to instrumentation about the roots for pyorrhea alveolaris. This dentist did not tell him at the time what the condition was, but it looked to me as if it was a case of mercurial stomatitis. This condition has been going on since last March and I have seen so many people and read so much on the subject that I have come to the conclusion from what others have told me that the case is one of putrefactive stomatitis. It is the only case of that kind of gingivitis I have ever seen. There is not a tooth in the patient's mouth that has not been involved in the trouble. He tells me that when the condition first started in on the lower anterior teeth there were pockets clear down to the apex between each tooth. Absolutely all tissue was wiped out and yet those teeth have shown recuperative power and, except in one case, are building up under care and attention. The last time I saw him there was a mucous plaque beginning to show between the two teeth as though they were going to break down again.

In a molar on the lower jaw, left side, and between a molar tooth on the opposite side there are large pockets. All the gum festoon is gone entirely, not along the side of the jaw, for that gum tissue is perfect, but there is a pocket between the teeth. The interproximal space is washed out. I have seen cases of mercurial stomatitis that I have been able to treat satisfactorily, but this seems to be beyond me. Something more than ordinary local measures is needed to eradicate the trouble in this case and I advised the man to go to Dr. Belfield after what he told me, even though he said it was not mercurial poisoning. Dr. Belfield said it was not a case for him, but the patient ought to be referred to an intestinal surgeon. He corroborated the diagnosis of putrefactive stomatitis, due to a lack of movement of the lower intestine and the continuous irritation that has been set up has resulted in some irritation of the bladder and other genito-urinary organs. At the same time the incipiency of this trouble can be traced without doubt to a lack of peristaltic movement of the lower bowel and proper evacuation of the feces. The man suffers intense agony at times and nothing seems to relieve him except local applications of nitrate of silver.

Dr. C. S. Case:

This is one of the best papers I have ever listened to before this society, and especially upon this subject. The thing that struck me particularly was the systematic classification of the different characters of the disease. We have quite a variety of manifestations of pyorrhea, which have fallen under my notice in the past few years, and I would like to ask if there has been any explanation offered for the tendency of the labial teeth to drift to the right or to the left, leaving a space between the teeth, which is not caused by occlusion, but with a crowding upon the adjoining tooth or teeth in such a way that it would seem almost impossible such force could be exerted. Examining between the spaces we find the gums and the alveolar process materially absorbed, and with not very marked pockets nor pus. That has struck me with a great amazement at times, for the reason that the teeth were not loose at all. There seemed to be exerted the same force as that of a screw pressing upon the tooth, and forcing it over against the other tooth.

While there are a great many causes of pyorrhea alveolaris, in almost all cases, we will find a deposit of calculus, which, with proper instruments and a great deal of skill and care, can frequently be removed, and the case properly and skillfully treated. But it strikes me, the main thing to accomplish in every case, as I have mentioned in a previous paper, should be absolute rest. Some retainer should be made and applied skillfully, which will hold the affected teeth absolutely in position, and then with subsequent care and proper treatment there is no doubt but that the diseased condition will be greatly improved, if not wholly disappear.

One of the prime causes of pyorrhea alveolaris in the lower front teeth, which has not been fully recognized by the profession, namely, the wearing away of the occluding surfaces of the back teeth, causing the teeth to come closer together, with the natural crowding together of the lower labial teeth toward each other. This crowding in of the labial teeth may continue to such an extent that the entire interproximate spaces will be closed; cutting off all tissues intervening between the teeth. Dentists see these cases when the teeth are loosened, the gums absorbing, with deposits on the teeth and with all the symptoms of pyorrhea and without a thought as to the real cause they proceed to remove the calculus, etc., with a view to curing the case, but which is absolutely impossible to accomplish under these circumstances, because the conditions are such that even if the teeth were fully restored, so far as the removal of the calculus and the application of proper treatment are concerned, that same physical condition of the teeth would still exist that would make it impossible to be restored to health. By removing a central incisor or lateral incisor and closing the space by a bodily lateral movement so as to evenly divide the interproximate spaces, will permit the gingival tissues to surround and enclose neck with sufficient space for perfect health. With the roots thoroughly cleaned to start with, it will be found that the moving process will aid in throwing off the diseased tendency and in restoring the parts to health. Then if the teeth are properly retained and reasonable attention given to their care the result will be most satisfactory. In a number of cases I have treated in this way for men and women over thirty, and some older than forty, the gum and alveolar process that showed considerable absorption has grown up between the teeth of closed up spaces and the alveolar process seems to be fully restored. In one case I removed two central incisors, and with the loss of these the adjoining teeth were drawn together with a bodily movement so as to cause them to stand in an upright position, notwithstanding great space that was produced by the extraction.

The alveolar process having undergone considerable absorption, the gum was dragged downward so that the mesial surfaces of the roots were exposed to one-half their length. The process of orthopedic movement—as stated in a paper which I read before this society about a year ago—seems to stimulate the activities of nature toward a healthful restoration and growth of lost tissue. The gums and tissues surrounding these teeth are absolutely healthy. He keeps the teeth clean himself, and occasionally goes to a dentist to have the deposits of calculus, which naturally accumulate, removed. Thus a threatened loss of all his labial teeth have been restored to usefulness solely through the extraction of the two central incisors and the proper bringing together of the adjoining teeth to close the space, and by retaining them firmly in that position.

Dr. E. A. Royce:

It is useless for me to try to discuss such a paper as this. I can only say that the paper is one which will spur all of us on to do better. It gives us new lines of thought in the consideration of these cases. It will give our fingers increased deftness in the removal of calculus from the teeth, and the diseased tissues, and when we are through reading this paper we will feel that we have read one of the classics on the treatment of pyorrhea.

I would like to report a case similar to the one referred to by Dr. Davis, with which I have been battling for some time, and finally gave up as conquered. Some two or three years ago I had occasion to devitalize the pulp in a lower bicuspid for a young married woman, on account of some trouble which I failed to find. The tooth was comfortable until two months ago, when she came to the office complaining of the bicuspid. It did not ache, but she wanted it examined. I failed to find anything wrong with this tooth. She came back later and complained again, and I took a probe, passed it under the gum, and after going down some little distance I found the root had been absorbed fully two-thirds. What irritated these cells so as to cause that absorption I do not know.

While Dr. Case was speaking of the central incisors moving, I was wondering if it was caused by the teeth traveling away from the inflammation in cases of pyorrhea, as they always do. The least thickening of the membrane will start teeth to move away from the seat of disease. About fifteen years ago Dr. Harlan stopped me on the street one day and asked me whether I did not wish to have my pyorrhea treated. I told him I did not have any. My lower central incisors have parted about the sixteenth of an inch. They are still traveling, but the occasion of it I have never been able to find out. I have not had an expert like Dr. Case examine them for some time. Occlusion may cause the upper centrals to drift apart, but I do not see how the occlusion can drive the lowers apart. I have never been able to detect any serious inflammation there.

Dr. J. E. Hinkins:

I feel that I have been well repaid for coming here and listening to this admirable paper; but I am going to say frankly, it is not the greatest paper I have ever heard. It is a paper, however, in line with the practice of every progressive dentist. I believe that every progressive and up-to-date dentist urges his patients to put into practice what Dr. Johnson spoke of in his paper.

The diagnosis he makes of his cases is good; but he did not tell us anything about the etiology of the disease, nor do I know of any one else who can. We are all meeting such cases in our practice as he has related. I have had a number of cases similar to those mentioned by Dr. Case and others. I have had good results in treating some of them, while in others my efforts have been attended with failure, particularly in those cases where the teeth separate. The trouble I have had in drawing them together has been that they elongate and come down and I cannot keep them back into place. I firmly believe that there are two prime causes of pyorrhea. I believe it is a blood disease as well as an infectious disease, and from my observations and work in connection with the saliva and its physiological properties—and as I have kept tab for a year and a half on some of my patients, examining their saliva chemically and their urine every month—it is really surprising to see the effect that nervousness and diet have on the fluids of the mouth. There are certain things which influence the conditions found in the mouths of patients. For instance, within twenty-four hours after some people have eaten grape fruit, you can see the effects in the mouth. You can find the effects in the urine and in the saliva. You will find almost the identical conditions in people who eat strawberries, not necessarily fresh strawberries, but those that have been in cold storage. A peculiar physiological condition is brought about after the fruit is taken into the mouth. There is faulty assimilation of the food, and from the best authorities I have been able to consult it seems to affect the lymph part of the blood, and there is where the trouble comes in. My authorities for this are Professors of the Johns Hopkins University, Columbia University, and my confrere, Dr. Acre. In three patients I have had under treatment for a number of years, two of them about twenty years, I can tell almost the minute they come in what they have been eating and what the trouble is. They take good care of their mouths; they carry out my instructions and aid me all they can, but when they came to me they had pyorrhea and were losing their teeth, but under local and constitutional treatment, which should go hand in hand in these cases, some of the teeth have been saved.

Dr. Truman W. Brophy:

What I have to say on this subject will not be exactly in line with the remarks of the previous speakers, but more along the line of diagnosis.

One of the most important utterances of Prof. James Adams Allen, who was for many years the president of the Rush Medical College, when asked a question as to the treatment of a certain disease, was that it depnds upon what is the matter. If one were to ask me how to treat pyorrhea alveolaris, I do not think I could give him an answer that would more clearly express my views that the answer of Prof. Allen. If one were to say: How would you treat pyorrhea alveolaris? Your answer would be that it depends on what is the matter. And how are you going to determine what is the matter? There is a way to proceed in making the diagnosis in a case of pyorrhea alveolaris that is not new. It is a well established principle governing the examination of conditions of the mouth. First, carefully proceed to note the condition; ascertain the length of time the condition has existed, and how long ago the first symptoms manifested themselves. Then consider the case from the manifestation of the first symptoms down to the present condition, and after we have obtained all the information that it is possible to get from the patient regarding the subjective symptoms, then make use of our knowledge and have the objective symptoms of the case in mind, and when we have finished with this we may not have reached a conclusion. Having made use of all the means at our command to determine the exact condition before us, we may still be in doubt. I have passed around this evening a skiagraph, which shows very clearly a destructive inflammation of the alveolar process around the laterals. It seems to me, with that before us, we would naturally feel inclined to make use of the

X-ray with the view of determining to what extent this destructive inflammation has proceeded. A good skiagraph will show you exactly the condition of the parts. In one case, that of a woman, who had been suffering from the exudation of pus about the necks of the teeth for a period of many months, and who had been treated by a good man, the teeth were found to be quite loose, and with very little improvement she was brought to me by a practitioner for an examination and opinion. I asked him some questions in order to find out exactly what he had been doing, and I suggested that a skiagraph be taken. A skiagraph was obtained, and the conditions of the teeth and their sockets were convincing to any man who would naturally look into the case carefully, that the teeth were beyond any possible hope of preservation. I said, "Doctor, the only thing to do with this patient is to take those teeth out, and the sooner the better. She is undergoing a slow pyemia, and your treatment will never restore those teeth to a condition of usefulness." I do not believe that it is possible for us to reproduce the alveolar processes when they are once destroyed. They may be stimulated and by improving the adhesion of the membranes the congestion will be relieved so that the teeth will remain for some time, but once the bony socket of a tooth is lost by destructive inflammation called pyorrhea alveolaris, the tooth is gone. In my opinion it does not reside within the power of any human being to restore the destroyed bone. There is where an error is made so often. The tooth is lost when the alveolar process is gone. The tooth is no longer useful, and its presence is a source of irritation to the parts. The patient is undergoing physical depression; his vitality is being lowered as the result of this irritant. The tooth is no longer useful, and the absorption of pus and the lowering of the general vitality and the physical distress which would be described by reason of the blood-poisoning are such that the best possible service a dentist can render to a patient when the teeth are in that condition is to extract them, and the sooner it is done the better it is for the patient. Anyone can determine that fact by a skiagraph taken by an operator who knows how to make good skiagraphs. This is an important step to take in the diagnosis of these cases.

I was delighted with Dr. Johnson's paper, as I am in all papers he reads. Whenever he reads a paper we have something to study, we have something to think over, and this paper will be of great value to men who want further information along this line, and I am sure everybody does. I am satisfied that a great deal of progress has been made. One of the speakers made the remark that he did not think much progress had been made in the last five years, but I think considerable progress has been made during that period of time in the study of this condition, and in coming to a decision as to when to attempt to retain these teeth, which is most important in connection with the whole subject from a practical point of view.

Dr. C. S. Case:

With reference to the absorption of the alveolar process and the possibility of restoring it, Dr. Brophy is correct in his advice that we should not attempt to retain a tooth in its position when there was complete absorption of the alveolar process about it, and whenever we do, the alveolar process will not be rebuilt. In the case I referred to, the alveolar process between the lateral incisors, after the centrals were removed, was decidedly absorbed and in the wide space before the teeth were moved, there was a deep depression, and the breaking down and the dragging down of the gums on the roots of the adjoining teeth. The forcing of these teeth together bodily, no doubt stimulated the growth of new alveolar process with its covering of gum tissue which now nearly covers the entire roots, except at the mesio gingival margins.

Dr. Johnson (closing the discussion):

As to the case mentioned by Dr. Davis I do not consider it one of ordinary pyorrhea alveolaris at all.

Dr. Davis:

I did not say it was a case of pyorrhea. I was only quoting that case to show you how some dentists do not seem to be able to recognize the true nature of these conditions. Eight different dentists diagnosed the condition as one of pyorrhea in this case, and they were all men of reputation, with offices down town, and one of them went so far as to resort to considerable instrumentation. I simply quoted the case to show how little the average dentist knows about the disease we call pyorrhea alveolaris.

Dr. Johnson:

The average dentist does not distinguish between these conditions as much as he should, and I mentioned that to corroborate what Dr. Davis has said. The case mentioned was entirely different from what we see in the average mouth, and it was something to be considered from an entirely different point of view. The average practitioner of dentistry simply goes on day after day practicing in a rut. He does not differentiate between the different conditions which he sees, and on that account he fails to do justice to his patients.

Dr. Case referred to a very important point, and that is the crowding of the teeth, and the changing of the positions of these incisors so frequently, without any apparent cause. That thing has puzzled me more than any one thing in dentistry, the movement of teeth in the mouth into different positions, where it would seem that they ought not to go, and where they are being resisted all the time in directions where there was absolutely no cause discoverable at all to move them, but still drifting, no pus, no inflammation, so far as we can determine. There may be inflammation of the peridental membrane, but this we cannot detect, and the gums are healthy, and yet these teeth keep on travelling. In some of these cases we cannot attribute it to any faulty articulation, and I confess sometimes I do not know what to do with these cases. Patients will apply to you with spaces taking place between the teeth, such as was mentioned by Dr. Royce, where you do not know what is the cause of it, and you cannot find any reason for it. I think it would be well for us to have a paper on this phase of the subject, one that is carefully thought out, by Dr. Case, who, I know, will do justice to the subject, and I am going to make the suggestion that he write on that subject. I have been looking for a long time for some man to rise up and give us some logical explanation of that, and how we shall remedy it.

I have been greatly pleased with the reception of my paper, and have learned some very significant things in connection with the discussion. My chief plea in the paper, and the one I want to close the discussion with, is this, that the profession should arouse themselves, the rank and file of the profession, to the obligation which they owe to the people who come and place themselves under their care, in order that they shall check the large amount of pyorrhea which they see, because they can check it. These conditions are manifest when the patients come to us, many times for years before they begin to lose their teeth, and they ignore the question of keeping their teeth clean, and their mouths hygienically clean. If there is a little inflammation of the gums, with a little pus, some dentists throw up their hands and tell patients that it is pyorrhea, and that it cannot be cured. I saw within the last week a case of that kind, where there is no question as to the cure of the condition, and still the patient has been told that nothing could be done for him. There is not a single symptom of loosening of the teeth in the case. There is nothing but a gingivitis caused by calcareous deposit, and yet that patient was dismissed with the idea that nothing could be done for the condition. Dentists should arouse themselves to do their duty, and point out to patients the importance of trying to keep their mouths clean. In many cases there does not seem to be anything constitutional about pyorrhea, but we sometimes effect a good constitutional result when we treat pyorrhea and our treatment does help to change the condition of the patient from one of disease to one of health. I want to live to see the day when the dental profession will rise up to its possibilities—we are only getting a glimpse of light here and there—of the true function we owe to patients as dentists. It has covered itself with glory in the mechanical operation of restoring parts of teeth and of lost teeth. In mechanical perfection it is wonderful, but in keeping the gums and teeth and surrounding tissues healthy, we have not been doing the best we could. It is for that purpose that I made a plea in the paper, and I am very grateful to the members for the reception they have given it, and I trust it will stimulate our young men to pay more attention to this one important thing.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

A WORTHY CHARITY.

From time to time THE DENTAL REVIEW has urged the desirability of wealthy men creating endowments for the furtherance of dental science, to the end that some of the problems confronting the profession might be cleared up through the medium of original research, and humanity be better served as a consequence. This has not yet materialized in the form suggested by us, but in the City of Boston a very worthy charity has been inaugurated which will be of inestimable benefit to the coming generations of that city. The intelligence is contained in the following despatch to the *Chicago Tribune*:

"Boston, Mass., March 13.—[Special.]—Thomas A. Forsyth, a wealthy resident of this city, plans to give $2,000,000 for the care of the teeth of Boston school children, as a perpetual foundation by which every child in the city from birth to the age of sixteen years may receive the most expert dental services free of charge.

"This donation will prove a boon to thousands of school children who otherwise never would have this care. The money, with a part of which will be erected a building equipped with every modern apparatus known to the dentist's art, and manned by a corps of the best dentists in the state, already has been set aside by Mr. Forsyth.

"Only the passage of a bill petitioning for the incorporation of his idea by the legislature stands between the plan and its immediate realization."

A most encouraging feature of this contribution is the cordial manner in which it has been referred to by the public press. The *Chicago Tribune,* for instance, gives its endorsement to the plan in the following editorial:

"A PRACTICAL CHARITY.

"Recognizing the fact that the brain depends upon the stomach and that the latter in turn depends upon the teeth, a wealthy man in Boston has provided a fund of $2,000,000, the income of which is to be expended in the care of children's teeth. Any school child up to the age of 16 may have its teeth cared for free of charge.

"Commissions reporting on the health of school children have decided time and again that one of the chief contributing causes of deficiency and ill health among pupils has been poor or uncared for teeth. Not only do they affect the pupil's health but his capacity for study. This is a practical charity which is greatly to be commended, and it were well if it could be duplicated in every large city in the land."

Mr. Forsyth may have the satisfaction of knowing that his beneficence will exert an influence upon the material and even the moral welfare of the people of Boston. The world is just beginning to realize the true significance of the teeth as factors in the health and mentality of the individual. In our opinion no public charity has been announced in years which will so surely and definitely show tangible results as this. It means that the children of Boston are to be placed on a better footing and given a better chance in the competitive struggle of life. The thanks of the entire dental profession, as well as of the particular community in which he lives, should go out to Mr. Forsyth for thus effectively calling attention to a needed reform and putting that reform into practice.

It now remains for some one of means to devote a like sum to the maintenance of an institution for original research along dental lines. There are many problems confronting the profession today, the solution of which might easily be brought about in this way, and which if solved, would add much to the sum total of the efficiency of human life.

THE EDITOR'S DESK.

AN AUTOMOBILE TRIP THROUGH EUROPE.

BY DR. FRED W. GETHRO.

[Continued from our April Number.]

After completing the descent of the St. Gothard Pass, which, under the unfavorable conditions of a dense fog and low-hanging clouds, made the drive the most hazardous I have ever undertaken, we continued due north through Altdorf, a small town well known because it is the place of the traditional scenes of the exploits of Schiller's William Tell, the supposed liberator of Switzerland from the Austrian yoke.

THE WONDERFUL AXENSTRASSE ROAD.

A bronze statue of the daring archer, with the child by his side, has been erected in the town, and a special theater has been built, where, during the summer months, representations of Schiller's William Tell are given.

The towns and places of special interest in Central Europe are so close together that there is always something unusual to look forward to. As we left Altdorf we were anxiously looking forward to the beautiful Lake of Lucerne, which is so closely associated with all the traditions of William Tell, and the famous Axenstrasse drive, which begins at Fluelen, a small town at the end of Lake Lucerne, and extends about nine miles to Brunnen.

The distance to Fluelen is only a few miles, so in less than half an hour we were on this beautiful Axenstrasse road. This drive skirts the east bank of Lake Lucerne and is of strikingly bold construction, for much of it has been cut out of solid rock, which rises perpendicularly from the lake. The views obtained from the Axenstrasse are magnificent, but one should take the steamer that runs from Lucerne to Fluelen to get the best views, for the scenery of Lake Lucerne is unsurpassed by any other lake in Switzerland.

SHOWING THE GALLERIES ON THE AXENSTRASSE ROAD.

The road from Fluelen to the City of Lucerne is only open for automobiles up to noon each day. After twelve o'clock it is reserved for pedestrians and there are literally thousands of them.

Numerous large signs along the drive continually warned us that automobiles were not permitted on the roads after mid-day. On account of the many sharp turns and the numerous pedestrians encountered along the route, we did not make as good time as we had figured on and twelve o'clock found us several miles from the end of the restricted portion. However, we decided to keep on, and, to our surprise, we were not molested. Perhaps our American flag, which was always waving in the breeze, told the story that we were strangers and should be excused for taking a few liberties.

We arrived at Lucerne and had lunch overlooking the lake and the Reuss River. Spent the afternoon looking over the city, viewing the bridges with their numerous paintings and, of course, saw the famous Lion of Lucerne. The dying lion (twenty-eight feet in length), cut out of natural rock, has been wonderfully executed, representing an enormous amount of work and is one of the sights of Switzerland.

A TYPICAL GATEWAY OF A TOWN IN GERMANY.

The next morning found us on the road to Lake Zurich. While this part of Switzerland is good touring country, it cannot compare with the central and southern parts. After seeing the Italian lakes and Lake Lucerne, Lake Zurich was awfully tame. We continued northeast to Lake Constance by way of St. Gallen. About two hours later we reached St. Margarethen, a small frontier town of Switzerland. Here I handed the Swiss official my Swiss triptyque, telling him we would not return to Switzerland. The triptyque was indorsed and we crossed a long covered bridge over the Rhine River.

Now we were to have our first touring experience in Germany. Just beyond the bridge was the custom house, and as I entered I asked, as usual, if the official spoke English. He politely informed me he did not, so I handed him my German triptyque. He looked at it, smiled and handed it back, and I wondered what could be wrong. Finally it dawned upon me that he was not a German official. After some parleying, and by the use of a map, he explained to me that we were in Austria. This was too good. I returned to the machine and informed the rest of the party that we were in Austria. Well, for about five minutes we just howled. The Austrian official saw the joke and laughed with us. After we recovered from our spasm, we began to look at the serious part of this predicament.

THE GEESE OF GERMANY.

Here we were in Austria, in the smallest sort of a town, without much cash, for we had planned to have very little Swiss money to carry into Germany. There is a narrow strip of Austria (about seven miles wide) extending to Lake Constance, and of course we had to cross that strip to reach Germany. On inquiry we found that to enter Austria it would be necessary to deposit $350 in Austrian money, which is about three times as much as some of the other countries require. We had letters of credit, express orders and checks, but they were of no use and had surrendered our Swiss triptyque and could not return to Switzerland. Finally we went back to the Swiss officials and explained the situation, and they permitted us to return to the town for funds. After hunting this small town over we finally located the only place that might be termed a bank. After pleading for about two hours, we convinced the banker that our letters of credit and express orders were genuine, and after some long-distance telephoning he cashed our checks, giving us Austrian money, part paper and part gold. We then returned to the Austrian Customs House, only to find that they could accept nothing but gold. Again we returned to the bank and it took another hour to find sufficient gold to make

RAISING FEATHER BEDS IN GERMANY.

the $350 deposit. After making the necessary deposit, the Austrian official placed a large number plate on the front and rear of the machine, and we proceeded through Austria. More than three hours were consumed in getting the money required for the deposit, and in less than twenty minutes we reached the border, where this $350 deposit was returned in German money.

CORRESPONDENCE.

NEW YORK LETTER.

My Dear Mr. Editor:

The communication to The Dental Review for this month will consist of an obituary only, for I do not feel able to do more. A word of explanation may help the situation.

Your readers generally do not know that the New York letters to your journal for many years have been the joint product of Dr. James G. Palmer and the undersigned.

About a month ago he telephoned of his indisposition, and intention to remain at home for a day or two. His decline dated from then until the end came on Easter Monday, March 28.

The death of Dr. Palmer affects those of us who knew him with peculiar emphasis, for we have not only lost a friend, but our profession, one of its serious and most able workers and thinkers. I wish to point out what he aimed at, not alone what he achieved.

He did everything to uphold a high standard of excellence in his profession, which fact may perhaps have escaped fullest recognition because of his unassuming simplicity and quiet earnestness of manner and speech. These traits, however, covered a keen insight into those deeper needs which our science of the present time not only is learning so adequately to answer but in many fields to anticipate.

He will always be numbered among those early to recognize and take an active part in this unfoldment of the ampler, wider and richer evolution of dentistry, and I cannot but express the hope, that we, his fellow workers and friends, can best express our truest appreciation of all that Dr. Palmer stood for, by seeing in his example an opportunity of an ever growing scope for reaching that goal of perfection, toward which he struggled. May it be given to us to likewise make the best and most of our obstacles as well as of our opportunities! For in this way alone does it seem to me are we justified in claiming that title of friend and fellow worker.

Yours truly,
Louis C. LeRoy.

REGISTRATION IN SOUTH AMERICA.

[The following is a letter written to a practitioner in answer to a question regarding registration in South America and is published by request. The Editor.]

Montivideo, Uruguay, Feb. 22, 1910.

Dear Sir:

Your favor of January 6th has just reached me in Bage, Brazil, where I am passing a few weeks in vacation. I have not seen the article referred to in your letter but presume it is an extract from some of my communications to the state department.

The examination must be given in the Portuguese language, including anatomy, with operations and dissections; physiology; materia medica; therapeutics; operative dentistry; inlays; crown and bridge work; mechanical dentistry in all the processes.

I would suggest that you secure a position with an established dentist in Rio or elsewhere in Brazil. In this way you will acquire the language and will not be spending your capital. The usual time for getting your diploma legalized is about six months as the law does not allow general final examinations, it is three exams, corresponding to three years. Your diploma should be signed in Washington in the Bureau of Public Instruction and should then be taken to the minister of the country in which you intend to settle, as for instance, the Brazilian minister for Rio de Janeiro. In case you cannot procure the signature (there should be no difficulty if your diploma is in Washington, as the same individual who attends to the bureau of instruction can also secure the signature), then get the Brazilian consul general's signature in New York. This is a most important and essential formality. Your application will be refused unless it contains the signature of one or both of these functionaries. It is a certificate of genuineness.

I am very busy at present with the Great International Congress of Medicine to be held in Buenos Aires. Your letter is one of forty on the same subject from all parts of the United States of America. At as early a date as possible I will give you further information. This you have received is in answer to your polite questions. It is my intention to visit the States shortly. I would suggest that you remain where you are until I arrive, when all the information you require will be cheerfully given. If every one will do his little in working up the reciprocity of titles of liberal professions, it may be that examinations will be eliminated in formalities of legalization.

(Signed) J. CLYDE MACARTNEY, A. M., M. D., D. D. S., LL. D.

PRACTICAL HINTS.

Removing Hardened Cement from Slab or Spatula:—Cement that has become hardened and firmly attached to a slab or spatula may be easily removed by using ammonia water.—*Carl M. Cahill, Chicago.*

Filling Root Canals:—To those who have not already tried it you will find it helpful if you dip your gutta percha cones into alcohol before placing them into the root canals. It not only stiffens the points but helps to sterilize them as well.—*V. W. Watt, Chicago.*

Investing a Large Bridge:—A convenient method of investing a large bridge is to pour the investment in the low or high ring of an old star flask as the case requires. The thickness of the metal is advantageous in retaining the heat in the investment after soldering. —*G. W. Johnson.*

Cleaning Glass Tubes:—If glass tubes are used in saliva ejector, a nice way to keep them clean and bright and also create a good impression on one's patients is to partially immerse them in a 10% solution of hydrochloric acid, contained in a large mouthed jar with a glass cover.—*Carl M. Cahill, Chicago.*

Enlarging Root Canals:—It is often necessary to enlarge a small root canal. This may be done nicely by using a small drill at first and gradually increasing the size till the desired diameter is reached. In operating the drill care should be taken to repeatedly withdraw it from the canal. This prevents clogging which causes binding of the drill in the canal resulting in a breakage of the drill.—*G. W. J.*

Making Wax Model for Inlays in Deep Cavities:—Fit a thin band of German silver around the tooth, having it extend beyond the gingival border of the cavity. Soften the wax and trim so that it will lead into the cavity. Force the wax into the cavity and pack down with a flat ended burnisher. Remove the band and wax from the tooth and flow melted wax into impressions left by the instrument. Remove the band from the wax and place the wax in cavity and carve to occlusion and contour.—*E. D. Coolidge, Chicago.*

To Open Canals for the Reception of Dowels or Posts:—With a small sized metal drill open into the filled root-canal to the desired depth, being careful to direct the drill in the direction of the root, and be sure that the drill is sharp so that it will cut the root filling clean as it goes. With this central position and depth obtained it is an easy matter to enlarge the canal for the dowel. The advantage in using the sharp metal drill is, that it sinks into the canal easily and avoids perforations.—*R. E. MacBoyle, Chicago.*

Cementing Gold Inlays:—In seating gold inlays in the cavity for adjustment or for final cementing it is more efficacious to tap them to place with a mallet than to force them with hand pressure. No amount of hand pressure will snug an inlay up to the margins so perfectly as will a few blows of the mallet. Care must be exercised that the inlay does not impinge too hard against a thin wall of enamel or in other words does not bind upon it. It it does, there is always danger that tapping the inlay to place will result in fracturing the wall.—*Ed.*

To Facilitate Obtaining the Correct Shade in Porcelain Inlay Work:—From whatever porcelain you are accustomed to use, make from each body an individual block and fuse. Mount these blocks in a straight row, arranging them so that they are graded from dark shades at one end to light at the other. The advantage of the above is that you have an accurate shade guide which is so arranged that on passing it across, beneath the tooth, for which we wish to select a porcelain body, the eye is able more readily to detect the color that harmonizes best with the tooth in question, than if individual separate shades were made use of.—*A. Dangar Burne, Sydney, Australia.*

Burnishing Matrices:—Instead of using linen tape as an aid in burnishing a matrix for a porcelain inlay, I find that gold-beaters' skin answers the purpose much better. Take a small strip of the skin about an inch and a half or two inches in length and as wide as desired, and, after you have the matrix adapted to the deep portion of the cavity, place the strip over it and use in the same manner as the tape. This material is thin and very tough and will not tear under the burnishers. It being thin and partially transparent, enables one to better burnish the margins and to observe during the operation that there is no buckling or tearing of the margins under it.—*A. F. Kenney, Chicago.*

For a Thorough Cleansing of the Teeth and Adjacent Tissues:—Use a generous quantity of tooth paste on a *dry* brush. Brush all surfaces of the teeth thoroughly, remembering especially the third molars. This can be nicely accomplished before it is necessary to expectorate. Now use the solution of tooth paste and saliva for several minutes as a mouth wash. You can do further washing with water if you desire, but I can see no benefit. The apparent advantages of the dry method are:

1. More effect of the grit of the paste.
2. A stronger medicinal solution of the paste.
3. A convenient method at all times, but especially if traveling or camping when the teeth are apt to be neglected. Try it.—*John Steele, Denver, Colo.*

Repairing Dentures:—In repairing a lower partial denture when it has been broken into two parts at a point lingual to the anterior teeth, it is often necessary to try the denture in the mouth, after waxing, to feel certain that the parts are in correct relation. As the waxing of the denture at the point of fracture is not sufficiently strong to keep the parts in correct relation while trying the denture in the mouth, additional strength can be obtained by waxing a piece of orange wood or a safety match across the plate from the occlusal surfaces of the bicuspids or molars on one side to those on the other side and by instructing the patient to keep the tongue well back in the mouth, the denture can be slipped to place and the correctness of the relation of the parts ascertained. This is also applicable in the repairing of full dentures as well.—*J. E. Schaefer, Chicago.*

Treating Chronic Alveolar Abscess:—Having satisfied myself that the roots of the tooth are properly filled, proceed with the blunt-pointed, flexible probe to follow the course of the tract if possible to the opening in the alveolar plate leading to the affected tooth. Should the opening be too small, I employ a sharp, round bur and enlarge the same. After the control of the bleeding I introduce the point of either a glass or metal syringe holding about one-half ounce of bismuth paste, and by gentle and steady pressure force the paste throughout the entire distribution of the fistulous tract. It may require subsequent injections, but one is generally sufficient. If the fistulous tract, after a reasonable number of injections, refuses to heal, I proceed to look for the cause, which may be either a foreign body necrosis or a sequestrum present, and after its removal and reinjection of the paste the desired effect may be expected. I would recommend that when possible obtain an X-ray radiograph and thus definitely ascertain the absence or presence of foreign bodies.—*Rudolph Beck, Chicago.*

MEMORANDA.

TENNESSEE STATE DENTAL ASSOCIATION.

The Tennessee State Dental Association will hold their 43d annual meeting, May 17, 18, 19, 1910, at Nashville, Tenn., and ask all ethical practitioners to attend. J. L. Manire, Secretary.

SOUTH DAKOTA STATE DENTAL SOCIETY.

The annual meeting of the South Dakota State Dental Association will be held at Pierre, South Dakota, June 9 and 10, 1910. All reputable practitioners cordially invited. E. J. Schnaidt, Secretary-Treasurer, Menno, South Dakota.

MONTANA STATE DENTAL SOCIETY.

The meeting of the Montana State Dental Society will be held in Great Falls, May 6th and 7th. Dr. J. H. Prothero, of Chicago, and Dr. J. W. Ritter, of Charlestown, Ill., will give clinics. W. H. Barth, Chairman Executive Committee.

ILLINOIS STATE DENTAL SOCIETY.

The 46th annual meeting of the Illinois State Dental Society will be held in Springfield, May 17, 18, 19, 20, 1910. In addition to an especially good list of essays and clinics, an unusually attractive supply exhibit is being planned. J. F. F. Waltz, Secretary, Decatur, Ill.

IOWA STATE BOARD OF DENTAL EXAMINERS.

The Iowa State Board of Dental Examiners will hold a meeting for the examination of candidates for license to practice dentistry in Iowa, beginning June 6, 1910, at 9 a. m., at Iowa City. For blanks and other information, write Dr. E. D. Brower, Secretary, Le Mars, Iowa.

IDAHO STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Idaho State Board of Dental Examiners for examination of applicants, will be held at at State House, Boise, beginning June 15th. Applications must be in the hands of the secretary at least five days before, and should be addressed to J. B. Burns, Fayette, Idaho.

NORTHERN OHIO DENTAL SOCIETY.

The 53d annual meeting of the Northern Ohio Dental Association will be held in Toledo, at Hotel Secor, June 7, 8, 9, 1910. It is a good time now to plan for this meeting. Excellent papers; fine exhibits; a 1 clinics and a rare meeting place. Toledo, Ohio, June 7, 8, 9, 1910. G. F. Woodbury, Chairman Executive Committee.

NORTH DAKOTA DENTAL ASSOCIATION.

The annual meeting of the North Dakota Dental Association will be held in Fargo, May 10th and 11th, 1910. This promises to be a great meeting. An unusually interesting and profitable program is being arranged for this year, and a cordial invitation is extended to all ethical members of the profession. F. A. Bricker, Secretary, 61 Broadway, Fargo, North Dakota.

OHIO STATE DENTAL BOARD.

The regular spring meeting of the Ohio State Dental Board will be held in Columbus on June 21-24, inclusive. All persons desiring to secure licenses at this time should write the secretary for blank applications and return same, with the fee of twenty-five dollars, to the secretary not later than June 11th. For further information address L. L. Yonker, Secretary, Bowling Green.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Indiana State Board of Dental Examiners will be held in the Capitol, Indianapolis, beginning Monday, June 13th, and continuing for four days. All applicants for registration in the State will be examined at this time. No other meeting will be held until January, 1911. For further information apply to the secretary, F. R. Henshaw, 507-8 Pythian Building, Indianapolis.

FIRST AND SECOND DISTRICTS DENTAL SOCIETY OF LOUISIANA.

At the last meeting of the First and Second Districts Dental Society of Louisana, the following named officers were elected to serve through the ensuing year: Dr. E. J. Zeidler, president; Dr. G. S. Grosjean, vice president; Dr. W. C. Richardson, treasurer; Dr. G. N. Weiss, secretary. Dr.

L. D. Archinard was elected to replace Dr. S. S. Grosjean as member of the executive committee. Suitable resolutions were drawn up and inserted on a separate page of the minutes, on the death of Dr. J. J. Archinard, A. M., M. D., an honorary member of this society. G. N. Weiss, Secretary, New Orleans, La.

CANADIAN DENTAL ASSOCIATION.

The bi-annual meeting of the National Dental Association of Canada will be held in Toronto, May 31, June 1, 2 and 3, 1910. There will be papers and clinics. We invite our American brethren and offer them all the privileges of the convention. The temperature is delightful in June. Toronto is three hours from Buffalo, four from Muskoka or Georgian Bay, one night from the famous Cobalt and six hours from the Thousand Islands of the St. Lawrence. Come and join us. Single fare rates upon certificate plan over all of Trunk line territory. George W. Grieve, Secretary of Executive, 2 Bloor street East, Toronto.

AMERICAN DENTAL SOCIETY OF EUROPE.

At the 37th annual meeting of the American Dental Society of Europe, held at Paris, France, March 25, 26, and 28, 1910, the following officers were elected for the ensuing year: President, Dr. W. M. Cooper, Frankfurt-on-the-Main, Germany; vice-president, Dr. F. F. Robinson, Paris France; honorable secretary, Dr. I. G. Patterson, Geneva, Switzerland; honorable treasurer, Dr. E. Frank Day, London, England; microscopist, Dr. C. F. Bödecker, Berlin, Germany. The next meeting of the society will be held in Dresden the first week in August, 1911. T. G. Patterson, Honorable Secretary, 2 Quai des Eaux-Vives-Geneva, Switzerland.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

The 13th annual meeting of the Southern California Dental Association will convene June 16, 17 and 18, 1910, at the College of Dentistry, University of Southern California, Fifth and Wall streets, Los Angeles. Visiting dentists are cordially invited. This is the first of the coast meetings, and is followed by the California State Dental Association, at San Francisco, the Oregon Association, at Portland, and the Washington Association, at Seattle. These meetings convene at intervals of a few days, the series being completed in time to reach Denver for the National Dental Association. B. Frank Gray, Chairman Publicity Committee, Southern California Dental Association.

MINNESOTA STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held at the Dental Department of the State University in Minneapolis on June 6, 7, 8, and 9, 1910. All applications must be in the hands of the secretary ten days before. All applicants must be graduates and present their diploma. Those having practiced in any of the following states for five years or more will be exempt from the theoretical examination: Iowa, Indiana, Michigan, Nebraska, Wisconsin or Montana. Minnesota dentists are admitted to those states on same conditions. For blanks and further information apply to the secretary. Dr. George S. Todd, Secretary, Lake City, Minn.

INDIANA STATE DENTAL ASSOCIATION.

The program for the 52d annual meeting of our association promises to be the best in our history. Every effort has been made to secure the very best talent in the profession for the essays and clinics. Among the essayists are Drs. R. Ottolengui, New York City; J. H. Prothero, Chicago; E. C. Mills, Columbus, Ohio; J. G. Carmichael, Milwaukee, Wis.; George Wood Clapp, New York City, and others from our own State. Dr. W. E. Kennedy, supervisor of clinics, has secured over fifty clinics, and a new feature will be clinics each afternoon of the meeting. Please notice that the meeting will be held this year, May 17, 18 and 19. Mark off these dates now. Otto U. King, Secretary, Huntington, Ind.

NOTICE TO GOLFERS.

All dentists who play golf should join the Chicago Dentists' Golf Club. One-day tournaments will be held each month from June to October, inclusive, and will be played over a different course each time, thus affording the members of this club a rare opportunity to play over the many beautiful courses around Chicago. During the season a team will be picked to challenge a team from the physicians' club. The September meeting will be a two-day tournament and dentists from our neighboring cities will be invited. This will be a grand meeting as a large number of golfers from out of town have promised to be with us at that time. If any dentist who is not a member will send his name and address to the secretary he will receive an application blank. So get in line boys. You will enjoy these meetings and meet a lot of good fellows and golfers. Lester F. Bryant, Secretary, 34 Washington street, Chicago.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held at The Northwestern University Dental School, corner Lake and Dearborn streets, beginning Monday, June 13th, 1910, at 9 a. m. The following preliminary qualifications shall be required of candidates to entitle them to examination by this board for a license to practice dentistry in the State of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reputable university, who enter the school or college as freshmen on or after the school year 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school or a certificate from the State Superintendent of Public Instruction, equivalent officer or deputy, acting within his proper or legal jurisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma. Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five (5) days prior to date of examination. The examination fee is twenty dollars ($20) with an additional fee of five dollars ($5) for a license. Address all communications to T. A. Broadbent, Secretary, 705 Venetian building.

RECENT PATENTS OF INTEREST TO DENTISTS.

941149. Dental plate, D. D. Hyman, Philadelphia, Pa.
941200. Antiseptic tooth-brush holder, W. D. Jones, New York, N. Y.
941043. Head and back rest, A. W. Powell, New York, N. Y.
940831. Aseptic lamp for dental, medical, or surgical purposes, D. Stern, Cincinnati, Ohio.
941612. Dental-engine handpiece swivel, A. W. Browne, Prince Bay N. Y.
941718. Dentistry, M. R. Koons, York, Pa.
942058. Tooth-brush holder, C. H. De Cowin, Cheboygan, Mich.

943113. Mounting for artificial teeth, E. J. Greenfield, Wichita, Kan.
942353. Matrix retainer, J. W. Ivory, Philadelphia, Pa.
943354. Artificial tooth, J. W. Ivory, Philadelphia, Pa.
943415. Tooth-brush holder, O. E. Jones, Fremont, Ohio.
943361. Mouth brace, C. Mayer, New York, N. Y.
942931. Dental spittoon, C. E. Ritchey, New London, Iowa.
943884. Dental instrument, W. B. Miller, Altoona, Pa.
944158. Revolving cabinet, M. Smith, Crabtree, Ore.
944115. Dental plugger, C. E. Tully, Madera, Cal.
944254. Making patterns for casting hollow dental fillings, E. P. Binford, Chicago, Ill.
944992. Dental-floss spool, A. J. Holmes, Rockville, Conn.
944836. Artificial tooth, J. A. Williams, Fort Wayne, Ind.
945713. Dental scraper, Charles P. Fritz, Philadelphia, Pa.
945194. Dental chair, Frank Ritter, Rochester, N. Y.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

MILLER MEMORIAL COMMITTEE.

To the Dental Profession of America:

At the December '09 meeting of the Ohio State Dental Society it was unanimously resolved that an American Memorial be established to perpetuate the memory of the late Dr. Willoughby D. Miller, as an evidence of the profession's appreciation of his laborious and fruitful researches for the scientific advance of dentistry. From the concensus of opinion of various state and local societies it was decided that the memorial take the form of a monument, to be erected in a suitable public place in Columbus, Ohio, the capital of Miller's native state. The monument to consist of a life size bronze of Dr. Miller, mounted upon a granite base of suitable proportions with appropriate tablets, the cost of which will approximate $8,000. Though his scientific career was in a foreign land, the great pride he showed in his American citizenship, the love for his profession in America, and his final plans for educating students in his own country in the line of work he had so ably begun, should make this memorial movement national in its scope, and to this end the committee in charge has selected honorary committees in the several states to co-operate in bringing this matter to a successful issue. This movement has received the endorsement of the National Dental Association. Ohio will raise $1,200 for this fund and it is the desire of the committee to have one tablet to state that contributions were received from representatives of the profession in every state of the Union. Contributions are desired from individuals as well as societies, in fact, many small subscriptions are preferable to a few large ones. The committee has selected Dr. Weston A. Price, 10406 Euclid avenue, Cleveland, Ohio, to act as treasurer of this fund, and to him all subscriptions should be made payable. That your state may be represented in this fund and appear in the published list of subscribers, we ask your earnest support. Your response to this appeal will be the measure, not only of the success of our committee, but of the appreciation of American dentists for one who raised the standard of the profession. Yours very respectfully, Edward C. Mills, Chairman, 16 South Third street, Columbus, Ohio; J. R. Callahan, 25 Garfield Place, Cincinnati, Ohio; S. D. Ruggles, Portsmouth, Ohio.

THE MEETINGS AT DENVER.

The National Dental Association, the National Association of Dental Examiners, the National Association of Dental Faculties, the American Society of Orthodontists, the Delta Sigma Delta Fraternity and the Psi

Omega Dental Fraternity, all meet at Denver during July. The attendance at these meetings will amply repay all outlay of time and money. The meetings promise to be first-class and the opportunity to visit Colorado and the "Queen City of the Plains" is a most favorable one. While Denver is a resort for all seasons of the year, it is especially attractive in the summer. A beautiful city in itself, Denver is in every way fitted to care for conventions. There are many first-class hotels, rooming houses and restaurants. Accommodations may be had for $1.00 per day and up for room without bath, and $2.00 per day and up for room with bath. A fair average rate will be about $2.00 and $3.00 for one and two persons respectively in room without bath, and $2.50 to $4.00 with bath. Good restaurants and cafes are to be found throughout the business section. The Brown Palace hotel will be the headquarters for the National Dental Association, the American Society of Orthodontists and the Psi Omega Dental Fraternity. The Savoy hotel will be the headquarters for the National Association of Dental Examiners and the Delta Sigma Delta Fraternity; and the Shirley hotel will be the headquarters for the National Association of Dental Faculties. These hotels are all located at the intersection of 17th street and Broadway. Street cars connect them with the Union depot which is at the foot of 17th street. The Auditorium, where the meeting will be held, is a well ventilated, fireproof building, arranged especially for the use of conventions, and will accommodate all departments of the meeting, including the exhibits, an ideal arrangement which will make it possible to profit by every feature of the meeting with the minimum expenditure of energy. A large and interesting manufacturers' exhibit is assured. The following firms have already made reservation of space. The S. S. White Dental Mfg. Co., The Harvard Co., A. C. Clark Co., The Dentists' Supply Co., Eli Lilly & Co., Horlick's Malted Milk Co., Kolynos Co., Chas. H. Phillips Chemical Co., The Ritter Dental Mfg. Co., W. A. Ivory, W. V.-B. Ames, The Apothecaries Co., James J. Ottinger, Lambert Pharmacal Co., The Denver Chemical Co., Pelton & Crane, Lee Smith & Son Co., Dental Protective Supply Co., Mulford & Co., and Columbus Dental Mfg. Co. Round trip railroad rates to Colorado common points during the summer season, June 1st to Sept. 30th, final return limit, Oct. 31st, prevail about as follows: Chicago, $30.00; St. Louis, $25.00;

A GLIMPSE OF DENVER.

Population Over 200,000. One Mile Above Sea Level. In sight of Perpetual Snow.

Omaha and Kansas City, $17.50. Notice: It is not generally known that these tickets can be purchased through to Colorado Springs and Pueblo at the same rate as to Denver. By doing this the tourist can visit the numerous points of interest south of Denver (Colorado Springs, Manitou, The Garden of the Gods, Pike's Peak region, Pueblo, etc.) without any additional expense for transportation. These tickets allow unlimited stop-overs, within final limit, in both directions at Denver and Colorado Springs, giving all the time desired to attend the convention, take in the side-trips, etc. Tickets may be validated for return passage at either of the points mentioned, leaving it optional with the purchaser whether the ticket is used south of Denver. Denver is the gateway to the wonderful mountain scenery of Colorado, the Switzerland of America. The side-trips out of Denver are numerous and varied, in character, time and expense. For detailed information, vacation suggestions, estimates, etc., write to Dr. H. F. Hoffman, Chairman Publicity Committee, N. D. A., 612 California Building, Denver, Colo.

DENVER'S NEW AUDITORIUM.
Where the Meeting Will be Held.

NATIONAL DENTAL ASSOCIATION, FOURTEENTH ANNUAL SESSION, DENVER, COLO., JULY 19 TO 22.

Officers and Committees, 1909-10.—President, Burton Lee Thorpe, 3605 Lindell Boulevard, St. Louis, Mo.; vice-president, West, W. T Chambers, California Building, Denver, Colo.; vice-president, East, C. W. Rodgers, 165 Harvard Street, Dorchester, Mass.; vice-president, South, T. P. Hinman, Atlanta, Ga.; corresponding secretary, H. C. Brown, 185 E. State Street, Columbus, Ohio; recording secretary, Charles S. Butler, 267 Elmwood Avenue, Buffalo, N. Y.; treasurer, A. R. Melendy, Deaderick Building, Knoxville, Tenn.

Executive Committee.—J. D. Patterson, Chairman, Keith and Perry Building, Kansas City, Mo.

First Division—Committee on Arrangements.—J. D. Patterson (*1911), Keith and Perry Building, Kansas City, Mo.; C. M. Works (*1912), Ottumwa, Iowa; W. G. Mason (*1912), Tampa, Fla.; (*Term expires.)

Second Division—Committee on Credentials and Auditing.—V. H. Jackson (*1912), 240 Lenox Avenue, New York, N. Y.; H. B. McFadden (*1911), 3505 Hamilton Street, Philadelphia, Pa.; M. F. Finley (*1910), 1928 "I" Street, N. W., Washington, D. C. (*Term expires.)

Third Division—Committee on Voluntary Essays.—L. Meisburger (*1910), 85 North Pearl Street, Buffalo, N. Y.; F. B. Kremer (*1910), Masonic Temple, Minneapolis, Minn.; C. J. Grieves (*1911), Park Avenue and Madison Street, Baltimore, Md. (*Term expires.)

Executive Council.—H. J. Burkhart, Chairman, Batavia, N. Y.; A. H. Peck, 92 State Street, Chicago, Ill.; B. Holly Smith, 1007 Madison Avenue, Baltimore, Md.; W. E. Boardman, 419 Boylston Street, Boston, Mass.; C. L. Alexander, 203 S. Tyron Street, Charlotte, N. C.; Burton Lee Thorpe, C. S. Butler (ex-officio members).

Sections—Section 1.—Geo. H. Wilson, Chairman, Schofield Building, Cleveland, Ohio; Stanley L. Rich, Vice-chairman, Jackson Building, Nashville, Tenn.; B. Frank Gray, Secretary, 1003 Security Building, Los Angeles, Cal. Prosthetic Dentistry, Crown and Bridge Work, Orthodontia, Metallurgy, Chemistry, and allied subjects.

Section 2.—L. L. Barber, Chairman, 718 Spitzer Building, Toledo, Ohio; Frank I. Shaw, Vice-chairman, 624 Burke Building, Seattle, Wash.; F. L. Platt, Secretary, Elkan Gunst Building, San Francisco, Cal. Operative Dentistry, Nomenclature, Literature, Dental Education and allied subjects.

Section 3.—Wm. Carr, Chairman, 35 West 46th Street, New York City; L. F. Luckie, Vice-chairman, Birmingham, Ala.; Richard Summa, Secretary, 410 Metropolitan Building, St. Louis, Mo. Oral Surgery, Anatomy, Physiology, Histology, Pathology, Etiology, Hygiene, Prophylaxis, Materia Medica, and allied subjects.

Clinics.—F. O. Hetrick, Chairman, Ottawa, Kan.; Howard S. Seip, Vice-chairman, Allentown, Pa.; L. A. Crumley, Secretary, Birmingham, Ala.; J. E. Chace, Ocala, Fla.; George E. Savage, Worcester, Mass.; J. J. Sarrazin, New Orleans, La.; H. H. Sullivan, Kansas City, Mo.; A. O. Ross, Columbus, Ohio; J. D. Towner, Memphis, Tenn.; J. B. Howell, Paducah, Ky.; L. B. McLaurin, Natchez, Miss.; J. H. Lorenz, Atlanta, Ga.; F. L. Hunt, Ashville, N. C.; J. G. Fife, Dallas, Texas; W. G. Dalrymple ,Ogden, Utah; R. D. Robinson, Los Angeles, Cal.; C. S. Irwin, Vancouver, Wash.; F. R. Henshaw, Indianapolis, Ind.; G. H. Nottage, Portland, Ore.; F. L. Wright, Wheeling, W. Va.; R. L. Simpson, Richmond, Va.; A. P. Burkhart, Buffalo, N. Y.; S. W. Bowles, Washington, D. C.; T. M. Hampton, Helena, Mont.; J. Bruce Perrin, Des Moines, Iowa.

Local Committee of Arrangements.—E. R. Warner, Chairman, 401 California Building, Denver, Colo.; H. A. Fynn, Vice-chairman, 500 California Building, Denver, Colo.; W. P. Smedley, 604 California Building, Denver, Colo.; W. A. Brierley, 36 Barth Block, Denver, Colo.; W. W. Flora, Colorado Springs, Colo.; W. T. Chambers (ex-officio), California Building, Denver, Colo.

The Chairmen of Sub-Committees.—Publicity, H. F. Hoffman, 612 California Building, Denver, Colo.; Clinic, A. W. Starbuck, Haish Building, 14th and Arapahoe, Denver, Colo.; Exhibits, John Steele, 632 Empire Building, Denver, Colo.; Entertainment, I. C. Brownlie, 404 California Building, Denver, Colo.

OBITUARY.

REV. JOHN MARTIN NEWKIRK.

Died, of tuberculosis, at Phoenix, Arizona, April 1, 1910, John M. Newkirk, son of Dr. and Mrs. Garrett Newkirk of Pasadena, Cal. The sympathy of all of Dr. Newkirk's legion of friends will go out to him in his bereavement. It had been known for some time to those intimate with the family that John was slowly but surely going down under the influence of that terrible malady, and yet it seemed hard to believe that the inevitable must come in face of the tender, loving care which was lavished upon him by one of the best of mothers. He was born at Winona, Ill., October 1, 1879, came to Chicago at four years of age, was educated in the public and high schools here, then went to Berkeley and was graduated with the degree of A. B.. He afterward entered the Theological Seminary at Princeton, and was graduated there in 1906, also receiving the degree M. A.

In his death the world loses a most promising young man, one who was capable of doing great good. And yet, brief as his life was, he left an impress on those with whom he came in contact, which made the world richer for his living, and constituted a really successful career.

Dr. and Mrs. Newkirk were blessed in having such a son even though their bereavement is great today in having him taken from them. We extend to them our sincere condolence and heartfelt sympathy.

DR. J. Y. CRAWFORD.

Died, of angina pectoris, at Nashville, Tenn., on April 5, 1910, Dr. J. Y. Crawford in his 63d year.

Dr. Crawford was one of the conspicuous members of the profession in the South, and was a man of not only national but of international reputation. He had practiced in Nashville for more than thirty years, and was respected and esteemed as a citizen as well as a dentist. His commanding presence will be missed at our national gatherings, and the profession of the South in particular will experience a serious loss in his death. He was a man foremost in every movement tending to the advancement of dentistry, and the service he did for the profession will live as a safe legacy when the men of the present generation have grown old.

DR. GORDON WHEELER NICHOLS.

Dr. Nichols was born October 25, 1837, at McCamlys Prairie, St. Joseph county, Michigan. He died in Chicago, February 22, 1910.

Where Dr. Nichols studied his profession or began his practice is not known to the present writer. He had an office down town in Chicago before the fire of 1871. After that time he practiced in his residence on West Adams street. In the seventies and eighties he was frequently seen in the meetings of the Chicago Dental Society and often had something to say, but for a good many years past he had absented himself entirely from dental meetings. He was, therefore, known to but few of those at present practicing in Chicago.

E. Noyes.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, JUNE, 1910. No. 6

SELECTION OF FILLING MATERIALS AND METHODS OF INSERTING THEM WHEN TEMPORARY WORK NEED NOT BE CONSIDERED.*

BY C. N. JOHNSON, M. A., L. D. S., D. D. S., CHICAGO, ILL.

There never was a period in the history of the profession when it seemed so difficult to properly place some of the materials in use for filling teeth as it does at the present time, nor to say definitely just what method or material shall be used in each given case. Some of the methods in use today and which promise very substantial results are, as a matter of fact, only in their evolutionary stage, and no man can predict with certainty just what their ultimate status will be. The suggestions presented for your consideration tonight are not offered with the idea of solving the question for all time or, in fact, for any appreciable time, but merely to point out what seem to your essayist the significant factors governing the most approved practice of the day.

It is understood from the title of the paper that temporary filling materials are not to be considered which eliminates from the discussion such materials as oxyphosphate of zinc and gutta percha, and places on the doubtful list the silicate cements. There seems to be much confusion in the minds of the profession regarding the precise status of the latter material, some operators reporting nothing but disastrous results from its use while others claim a very encouraging measure of success. This emphatic disapproval on the one hand and equally emphatic endorsement on the other may in a measure be accounted for in the fact that when it is a failure it is a most dismal failure, and when it does succeed it seems to furnish one of the most ideal filling materials we have ever had for certain classes of cavities exposed to view and not subjected to severe stress. Of one thing we may rest assured, that it cannot be successfully built out into contours to restore the incisal or occlusal angles of teeth as a regular rule of practice. Its tendency to splinter off under stress is too pronounced to permit the conservative operator to depend on it for this class of work. There also seems with most of these cements to be a determined persistency to shrink and this, of course, leads to leakage around fillings which ultimately ends in failure. Added to this is the serious discoloration which we occasionally see occurring in the most unaccountable manner, and we have a series of limitations which make careful men pause before using this material extensively. On the other hand we have a reverse picture. Some fillings appear after several years' service to be in good condition, with no apparent shrinkage, no discoloration and no solution of their surfaces which can be detected. The margins seem perfect and the blending with the enamel surface is such as to make a filling which is less conspicuous even than a porcelain inlay. Such results as these give a certain measure of basis for the enthusiasm which some operators have developed in favor of this material, and yet, as has just been said, when failure does come it is so disastrous as to temper the highest enthusiasm.

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*Read before the annual meeting of the Chicago-Odontographic Society, January 28, 1910.

What causes this apparent discrepancy in the behavior of the silicate cements I am not prepared to say. Some operators unhesitatingly state that it is all due to the manipulation, but if this is true it must be admitted that this material is so exacting in its demands that it constitutes a very serious limitation to its usefulness as a material with which to save teeth, because we find failures occurring in the hands of the most conscientious operators. A series of careful experiments should be made with this material by some of our investigators to see if more light cannot be shed on its physical characteristics and thus give us a better basis upon which to judge of its usefulness and the most approved methods of manipulating it.

With the silicate cements still placed in the balance we come to a consideration of those materials about which more is definitely known. For saving the anterior teeth we are given three methods, each of which has its advantages under certain indications. We can use the ordinary gold foil fillings, the porcelain inlay, or the gold inlay. This at once brings up a discussion of the relative value of foil fillings and inlays—a subject which has occupied the attention of the profession quite extensively for several years. It is not necessary to go deeply into this discussion on the present occasion, but I should like to ask your forbearance while I reiterate a statement I have frequently made and the truth of which impresses me more and more as I study the subject. With all of the beautiful results which we are today securing with inlay work, results which we fondly hope and confidently believe will prove sufficiently permanent to justify us in continuing this kind of practice, we should not forget the fact that there has been no method or material yet introduced which for absolute reliability in tooth saving properties can be compared with a perfectly adapted, perfectly condensed, perfectly contoured, and perfectly finished gold foil filling. And I also believe that whenever this fact is lost sight of in the conduct of a practice there is something tangible lost which militates against the greatest ultimate benefit to the patient. To gain the closest apposition of gold to the dentin and enamel walls of a cavity is to seal that cavity more securely and permanently against leakage than is possible with any other material at our command. Much has been written about the disadvantages of gold in contact with cavity walls, but this is true only of those rare cases of extreme hypersensibility and in deep cavities which come near to involving the pulp. Gold, then, must still remain the most reliable of all filling materials wherever a perfect technique may be secured in its use—but just here comes in the rub, and it must be acknowledged to be a rather severe and compelling rub. To get a perfect technique with gold in many of the cases which come to us the operator must sacrifice more of himself and his patient than seems justifiable in the highly wrought nervous organisms of the present day. Even if the dentist were willing to sacrifice himself on the altar of the highest ideals and greatest perfection of results he would still have his patient's attitude to reckon with, and this attitude is something that cannot be wholly ignored. It is true that the dentist should take a firm stand against dictation on the part of the patient when the point at issue is one which seriously affects the future welfare of the patient, and yet when patients quite generally take the stand that they will no longer submit to having large gold foil fillings inserted when inlays can be used instead, it must, in a large measure, influence any observant operator. To stand out against a sentiment so widespread and pronounced as this is growing to be is to alienate many excellent patients and confine one's efforts to a few, which is surely not in the line of doing the greatest good to the greatest number. Then there is another consideration in this connection, the necessity of a perfect technique with gold in order to secure a good result, and the difficulty of obtaining this in very many of the cases which we are called upon to treat. People are becoming more and more intolerant of long sittings, and while improved methods of technique have materially shortened the time necessary to insert a gold filling, yet it is at least much longer in large restorations than to have an inlay inserted. If we induce a patient against his will to sit for a large gold filling he becomes restless and more or less impatient, and this seriously interferes with a good technique. Then there are many cavities so located and muscles of the mouth so constituted that even with a willing patient it is difficult to perfectly insert foil, which naturally results in work not up to the highest standard; and if it is true that gold, when properly inserted, is the most reliable of all filling materials, it is equally true that an imperfect gold filling is one of the most disappointing.

There can be no question that a well inserted inlay is greatly preferable to a poorly inserted filling, and in those cases where a good technique can be obtained with an inlay and not with a filling the former should be used in every instance. And in this connection it may be stated that today many operators are accomplishing better results for their patients by the inlay method than they ever did by gold filling, due to either one of two things—that their natural technical tendencies fit better into the manipulation of the inlay than of the foil filling, or that they were never able to sufficiently control their patients to get a good technique with gold.

But let us consider more specifically what we deem the most suitable filling material for the different classes of cavities. In incisors the question of esthetics enters more and more as a vital factor for consideration in deciding the selection of a filling material. Patients are becoming more sensitive about having any evidence of operations on the teeth apparent to the public gaze, and this is only in line with a higher cultural development of our civilization. We should therefore co-operate with our patients to the fullest legitimate extent in this direction, though we should never jeopardize the usefulness of a tooth by placing in it something less substantial than gold unless the gold is offensively conspicuous. Porcelain inlays seem to have waned appreciably in professional esteem, and there is a danger that in the swinging of the pendulum some of their virtues may be ignored. In all exposed cavities in anterior teeth in patients of high esthetic sensibilities porcelain will be much less conspicuous than gold and should therefore be used. But it is always at the sacrifice of stability and permanence that it is substituted for gold, and this should never be ignored in its selection. One reason why the profession is apparently turning a cold shoulder on porcelain is because of the unsatisfactory condition of the margins of many porcelain inlays after a few years of service. This relates not only to a chipping of the porcelain at the margin, but to a discoloration of the line between the inlay and enamel. In many mouths we find a tendency to this discoloration, no matter how fine the line may be between the inlay and tooth, and this with a painstaking and discriminating operator proves a source of embarrassment even when the patient makes no complaint regarding it. In fact, in some instances this discolored line develops so slowly that the patient is less impressed by it than is the dentist, and yet in observing the condition of many porcelain inlays after a few years the frequency of this dark line has a quite natural tendency to influence an operator against using them. But with all of this, porcelain, if well inserted, is less conspicuous than gold, and the lesson should be to take the greatest pains with porcelain and secure the most perfect technique. It may not be possible with the best technique to always obtain satisfactory results, but the better the technique the farther removed from those glaring defects which have brought discredit upon this method.

Cavities with large labial exposures, whether proximal, incisal, or gingival, in individuals who show their teeth extensively and who are esthetic in their tastes should be filled with porcelain, but all other cavities in incisors should be filled with gold. It should always be borne in mind that the margins of gold fillings are more satisfactory than are those of porcelain inlays, and that gold is more reliable in saving teeth, so it should be used in every instance where esthetic considerations do not predominate. There are many instances where the incisors are not exposed to view to the gum line even when the patient laughs, and in these cases cavities occurring in the gingival third of the labial surfaces should be filled with gold. In a very careful study of the behavior of gold and porcelain in these cavities in the labial surfaces, I have been so impressed with the better condition of the gold over the porcelain after a few years' service that I am impelled to strongly urge the more general use of gold where it is not too noticeable. In the case of men who wear a moustache it is frequently possible to employ gold in nearly all cavities without making it conspicuous.

As to the decision between gold inlays and fillings where gold is to be used in incisors it is once more a question of technique. If the patient can be properly controlled so as to permit of a perfect operation, gold foil can usually be employed to better advantage than a gold inlay and with more certain results, but in some instances the difficulties of securing a good technique with foil are so great that a better result can be obtained with an inlay. In a general way the larger the cavity the greater the leaning toward an inlay, while the smaller the cavity the more the argument is for a filling. As has already been stated, the insertion of very large foil fillings is not readily tolerated by the average patient of the day, and so far as the writer's experience has gone the attempt to insert very small inlays, whether of porcelain or gold, is exceedingly unsatisfactory. That method should be employed which promises the most permanent results, irrespective of previous opinions or prejudices, and each case should therefore be studied separately and be considered as a law unto itself. This is necessary to avoid the too common tendency to fall into ruts and to practice in a routine way from day to day.

Cavities occurring in the molars or bicuspids should be filled with either gold foil, gold inlays, or amalgam. Porcelain has no place in these teeth unless it is in rare instances in exposed positions in bicuspids. It has gone down too often in fracture and defeat when exposed to the stress of mastication to longer permit of argument on its behalf in these positions. In line with the statement just made as to the undesirability of small inlays, all pit and fissure cavities should be filled with foil unless the tissue has become involved so far beyond the fissures as to make a large and complicated operation. With many of the pit cavities the attempt to insert inlays as some operators are doing, seems to the essayist extremely ill-advised. To properly prepare these cavities for inlays involves much more cutting than for fillings, and the aggregate time consumed in the operation is all in favor of the filling. Added to this is the incontrovertible fact that the finished product is more perfect in these cases with the filling than the inlay, and it leaves no argument in favor of the inlay, except the untenable one of an undue predilection on the part of the operator in favor of inlay work.

The debatable ground seems to your essayist to be encountered when we approach cavities involving both the proximal and occlusal surfaces, and here there is no disguising the fact that the pointing of the finger-board is in the direction of inlay work. The problem of gaining a good technique with gold foil in these cases is a different one from that of the small pit cavities, and the operation is more severe on the patient. When you increase the tension on the patient you at once develop a restlessness which interferes with good work, and in every case where the operator can secure a good technique with inlay work and not with foil he will serve his patient better with the inlay. This does not alter the fundamental fact before stated, that a perfect gold filling is more reliable than an inlay. With the best inlay there is always the cement to be reckoned with, and this is not always reliable or uniform in its behavior. Inlays sometimes loosen and fall out in most unaccountable ways, even when apparently well inserted and by the very best inlay workers, though it may be confidently predicted that the percentage of such failures will grow less as the principles of inlay work are better understood and the quality of our cements is improved.

There is one condition sometimes met with in these complex cavities in which decay has extended very much wider bucco-lingually in the gingival region than it has near the occlusal surface, and in which there is little undermining of the tissue toward the occlusal. To cut such a tooth away sufficiently to receive an inlay is little short of vandalism, and the resultant weakening of the tooth from an operation of this kind can never be compensated for by any of the advantages of inlay work. It may be argued that in many of these cases the extent of the cavity, particularly where there has been some recession of the gum and much extension of the decay rootwise, introduces the factor of a difficult and nerve-trying operation with gold foil. This is true, and there are frequently cases where the condition practically precludes the use of foil. It is in such cavities that amalgam has its widest and most legitimate field of usefulness.

It is unhesitatingly stated at this time that amalgam can be made more serviceable in these extensive cases than either foil or inlays—more serviceable than foil because a better technique can be gained with it, and more serviceable than an inlay because it leaves the tooth stronger. If the cavity is properly prepared for amalgam, a good alloy is used, the filling well condensed and built into a proper contour, and then subseqeuntly carefully polished, it is an operation which will save many badly decayed teeth and do it with little nervous tension on the patient. But the simple fact must be faced that very few operators will give it this attention. We may moralize about the necessity of doing this and the lack of conscientiousness in the operator who does not do it, but we cannot change the fact. It is a condition and not a theory we are facing. There seems to be something inherent in the character of amalgam which does not draw out the artistic or esthetic in an operator, and, try as we may, there are many of us who simply cannot put the enthusiasm into our amalgam work that we can into gold or porcelain. As a personal point of view, your essayist wishes to state at this time that while he has felt obliged to use much amalgam through financial consideration for his patients, and while he has tried to do conscientious work with it and has saved very many teeth which he believes otherwise would have been lost, yet he frankly admits that he has never found it possible to develop any degree of enthusiasm for the material, and has never been able to perform an operation with it which brought to him the inspiring glow of satisfaction which has frequently rewarded him at the completion of a gold filling, or a gold or porcelain inlay. He has often taken himself seriously to task for this apparent defect in his make-up as an operator, and yet experience would seem to prove that there are very many others in the profession who are influenced as he is by amalgam. This may be accounted for in part by the fact that an amalgam filling cannot be properly completed and polished at one setting. The operator cannot obtain solidity and resistance to the filling at the time of inserting it. He must dismiss his patient with the feeling that it is more or less insecure till it has crystallized, so much so that he usually instructs the patient not to masticate on it for a few hours. When the patient returns for another sitting some of the interest in that particular operation is gone and the operator approaches the difficult procedure of polishing the filling without the consecutive enthusiasm which is developed by the insertion of a gold filling or an inlay. The rhythm of the operation is gone, and the polishing is seldom so satisfactorily done—if indeed it is done at all—as it would be if it had been possible at the time the filling was inserted. With a gold filling or an inlay the final touch can be given it at the same sitting it is inserted, and the patient dismissed with a sense of accomplishment and completeness.

The amalgam filling then can never appeal to an operator of high artistic and esthetic sense, and must remain as it has in the past, a useful rather than an inspiring material. That it is useful can never be denied, and yet since the advent of the cast gold inlay there are fewer indications for its use. Aside from the class of cavities just referred to—those in which gold foil would be too difficult or exhausting and gold inlays impracticable—there is only one other consideration to justify its use, and that is a financial one. Amalgam has proved and will continue to prove a serviceable material with which to save teeth for those who cannot, or who think they cannot, afford the more costly methods; and yet it should be the function of the dentist to educate people to the idea that the best is none too good for their personal preservation and that there has never yet been devised any material which is quite good enough to go into a human tooth.

For cavities occurring in the gingival third of the buccal surfaces of molars the gold inlay offers the best solution of the problem. The location renders it difficult to do perfect work with foil, and if there is any place in which amalgam has proved unsatisfactory it is here. The slightest tendency to shrink on the part of the material draws the filling away from the mesial and distal extremities of the cavity and starts a leak which ultimately leads to failure.

The title of this paper includes the methods of inserting the various filling materials under consideration, but the length of time consumed, whether judiciously or otherwise, in dealing with their selection prohibits any reference to this phase of the subject. Much of a practical nature might be given at this time, particularly with reference to simplified methods of inserting gold foil, and to the most efficient technique in gold inlays. It seems to the writer that the majority of members of the profession are not living up to their highest possibilities or taking advantage of the best there is in the various materials presented for our use. The blind following of any one method to the exclusion of all others is not conducive to a symmetrical development of the dentist himself so far as his professional ability is concerned, nor to the best interests of the patients whom he is called upon to serve. And yet this much must be said—and it is the key to the entire question—that it is as much the skill of the operator or his peculiar ability to manipulate certain materials as it is the material itself which counts for or against success. With any of the materials extensively in use today it is possible for a capable and conscientious operator to do work which will prove of great service to the patient, while with a careless and unskillful man no material can be relied upon to give satisfaction.

It is as much, then, a matter of manipulation as it is of material, and this fact should urge us on to the achievement of a more perfect technique in the use of any material which appeals to us. But it should never narrow us to one material, because the virtues of all the materials at our command are none too great to successfully meet the various cases which come to us.

TWO VIEWS OF BLACK'S TEACHINGS.*

BY H. E. FRIESELL, D. D. S., PITTSBURG, PA.

Your essayist's first introduction to Dr. Black's teachings (aside from a few vague references by his college teachers), was made shortly after the publication of the articles on amalgam, when a member of Dr. Black's faculty presented this and other subjects before a society meeting. Whether the fault lay in the presentation or in the misinterpretation by the audience, perhaps in both, the result was to create a decidedly unfavorable opinion of what was conceived to be Black's teachings. Many of the older men who heard those lectures still maintain their antagonism, though perhaps the lecturer is not entirely accountable for this condition of affairs.

Your essayist was quite as antagonistic as any one else at that meeting, and later he began to wonder how any body of men could entertain such absurd ideas as Dr. Black's followers appeared to have. They seemed to be reasonably intelligent and sensible on other subjects, but when it came to dentistry—gracious! they seemed as crazy as bedbugs. No such thing as hard and soft teeth! Why, hadn't we all seen these conditions in practice? Didn't patients return frequently with decay undermining our fillings, not only the other man's fillings, but our own fillings—fillings we had made most conscientiously? The fillings were there as evidence that it wasn't the fillings' fault; and often, so great was the softening, one would have to chase the filling 'round and 'round in the cavity before one could pry it out. It was the tooth's fault. "The patient's teeth are too soft to hold gold," said we, so we put in amalgam. When they proved 'too soft" to hold amalgam, we put in cement and gutta percha; and some eminent operators still maintain that a gutta percha filling will prevent recurrence of decay on the proximal surface of a tooth where gold or amalgam placed in the same cavity will not do so.

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*Read at annual midwinter clinic of the G. V. Black Dental Club of St. Paul, Februray, 1910.

Clinical experience—that platform upon which the antagonist of Black's teachings took his firm stand—clearly indicated to him that vital changes were going on in the fully formed dentin and enamel. For instance, wasn't it demonstrated time and again that the teeth of the mother, during gestation, became softer and more liable to decay because the lime salts were being abstracted to supply the infant? During periods of severe illness, similar changes in the structure of the teeth were noticeable; and the writer remembers quite clearly the statement by one practitioner that one of his patients had presented with the enamel of his molars so soft and decalcified that an exploring point could be pushed entirely through the tooth, and that at a later period, after a course of some treatment on hypophosphites, etc., the teeth had resumed their normal hardness.

As to the removal of softened dentin near the pulp, that meant treat the tooth for one to many months perhaps; so the wish became father to the thought, and pulps kindly recalcified this dead tissue.

The action of caries on the teeth, except as to the size of a cavity when presented, was something little understood or thought about. The localization of dental caries, consequently, was not appreciated. The forms of the teeth and the interproximal spaces were mere generalities, and the gingiva, interproximal and otherwise, was simply a nuisance.

Extension for prevention, as usually interpreted, meant unlimited cutting in every direction and in every case, and as the operator had learned that a small cavity in an obscure position was difficult to fill, he reasoned that if made large it would be proportionately more difficult. Consequently convenience of approach to the cavity was sacrificed with religious fervor, in order to save extra labor quite as frequently as "to preserve sound tooth structure."

The preparation of the enamel wall was confined almost entirely to the artistic outline the operator desired to give to the completed filling, as little knowledge, and less consideration of the structural requirements of the enamel, entered into the matter. The toilet of the cavity was looked after with more or less care, in accordance with the operator's skill, or lack of same, in applying the rubber dam. The principal difficulty in placing the filling material was to get the gold packed into the cavity without its "rocking" when the cavity had been nearly filled. How to anchor it after it had "rocked" was the cause of additional anxiety.

To those of my hearers who have been through both sides of this question, these things are an old story; but to the younger men who have not had the doubtful advantage of learning dentistry twice, I mention these things in order that they may have a clearer conception of the great influence that has been made upon dentistry by the teachings of Dr. Black. Remember, these views were not confined to the unthinking portion of the profession, but they were honestly believed by conscientious, intelligent practitioners as well—men who were doing their very best to preserve the teeth of their patients; men who believed these things absolutely, and some of whom still believe them and advocate them.

Such was the condition of dentistry where Black's teachings were not followed; and such very largely is the condition today where these teachings are refused consideration. Within the past month, the editor of one of the best known dental journals maintained that perfect adaptation of filling material to cavity walls was not essential; that a leaky filling would not result in recurrence of decay unless the crevice around the filling were large enough to be visible to the naked eye. Another operator of some prominence maintained that there are tubules in the enamel, though they are smaller than those of dentin; and within a fortnight the principle of "extension for prevention" has been classed as "the most damnable teaching that has ever been turned loose on the dental profession."

These things only faintly depict the views with which Black's teachings were held by those who were only slightly acquainted with them, and indicate the frame of mind of the audience which sometimes listens with little understanding to the disciple of Black, who, in a brief paper, is endeavoring to make clear a principle or two—principles which, for their perfect understanding, require a fairly broad knowledge of a whole system of dentistry, *that whole system of dentistry that is based on all of Black's teachings,* and which cannot be learned in a lecture or two, or in the perusal of a few articles, but which, for its full understanding, requires that a man return to the fundamentals of dentistry and study the whole subject again.

Your essayist has always remembered the lesson of his introduction to Black's teachings; and when addressing an audience, in order that he may not unintentionally misrepresent Dr. Black by presenting some of his teachings incorrectly, he has found it good practice to mention his original antagonism to these teachings, to state that he can sympathize with any of his hearers who may be likeminded, and to absolve Dr. Black from any misinterpretation he may make through his inability to present the subject with sufficient clearness. He also requests those of doubtful tendencies to indulge him with a patient hearing and that later they, without bias, investigate the facts as presented. From his own experience he knows that Black's teachings will bear the most exacting tests and investigation.

After he had been in practice for a few years, your essayist found himself in a dilemma. He had more work than he could do. For some reason he couldn't accomplish as much work in a day as some of his neighbors, and in some cases, no matter how carefully he tried, the work did not hold up as he felt it should. To work more rapidly by the only methods he knew was to sacrifice the quality of the work, and there wasn't any margin to go on as it was. But something had to be done. The situation had become serious. He began to look for places where he was needlessly losing time, and found quite a few. Just about this time he read an article in an obscure dental journal, which strongly appealed to him. The author of the article was a man whom he had heard some of the older practitioners speak of as "the biggest crank in the dental profession." Further than this he knew nothing about him, except that he was one of "those Black fellows." However, the article was gotten up in a terse, pointed way, that made everything clear and carried such a positive air of conviction that it was cut out and studied many times. The author seemed to have such an excellent grasp of the subject, and to proceed about his work in such a systematic way as to eliminate all loss of time. Your essayist came to the conclusion that if a man like that was so enthusiastic over Dr. Black's teachings, there must be more in them than he had imagined, and straightway he determined to investigate the subject for himself.

It affords me particular pleasure that I am able at this time to acknowledge my indebtedness to the man who, unknown to himself, was my preceptor in the Black School of Dentistry. The author of that paper was Dr. E. K. Wedelstaedt, and though this acknowledgment is late, it is none the less fervent.

The study of Black's writings changed the whole aspect of dentistry for me, and a few years later, when I had the privilege of making Dr. Black's acquaintance, many things that I had not been able to solve for myself were made clear, and a friendship was formed that has been to me an inspiration.

Since our introduction to the Black School of Dentistry, the light thus received has been passed along with enthusiasm to the younger practitioners whom it has been our privilege to teach. In the last few years we have had the pleasure of witnessing several dental schools in the east introduce Black's teachings in place of those that preceded them; and on a recent visit to Boston we found, much to our surprise and gratification, that Black's methods have been adopted and are being carried out in the technic and infirmary work of Tufts Dental College.

In western Pennsylvania, eastern and central Ohio, and western New York, where until recent years there were few, if any, who believed in Black's teachings, we now find that most of the younger men, and many of the more progressive of the older men, are followers of Black. From indications that crop out occasionally, it will not be long until sectional opposition in other quarters will be superseded by a demand for scientific dentistry, and other seats of learning will welcome the teachings of Black.

So much for the manner in which Black's teachings primarily impress one who has learned dentistry otherwise. Now, in what way do Black's teachings modify older methods of practice? In the first place, we learn that the treatment of a cavity in a tooth is not simply to plug up a hole of certain dimensions. That hole is the symptom of a disease which has well defined and localized points of attack, and if the repair to the tooth is to be of value in saving the tooth, not only must the lost tissue be replaced by filling material, but the susceptible portion of the surface that has been attacked must be so treated as to prevent recurrence.

We are taught that the tooth is important not only as a tooth, but as a part of the *masticating organ;* and that the improper condition of any one tooth lessens the usefulness of the whole masticating apparatus. The paramount importance of a proper contact point and interproximal space is emphasized, as upon these depend the health of the gingiva and the protection of the greater portion of the tooth surface that is not protected from caries by the scouring action of the food in mastication. The importance of vigorous mastication in preventing tooth decay is pointed out, and attention is called to the impossibility of masticating vigorously upon a tooth that has a tender or weakened peridental membrane.

To Dr. Black we owe probably all that we know about the practical application of our knowledge of the structure of enamel. Likewise, to him we owe all that we know of the action of caries of enamel, without which knowledge all that has been written about caries or dentin would be of little value.

The rational study of the interior of a tooth and the treatment of the soft dental tissues—the pulp and the peridental membrane—were taught us by Dr. Black in his articles in the American System of Dentistry over twenty years ago, and nothing better along these lines has been written since. With the exception of the recent introduction of a few remedies that are based upon our better knowledge of the chemistry of pulp decomposition, these articles are as practical today as they were when first published.

In 1868 Dr. Black gave to us an article on the physical properties of gold foil, and in forty-two years no one has added to our knowledge of that subject.

In Black's work only do we find any definite directions for cavity preparation, or the manipulation of filling materials; and he does not stop at that point, but goes on with the most definite instructions in instrumentation, clear through to the finish of the filling. He has proved to us the fallacy of the hard and soft tooth question, and many other things too numerous and too well known to need mention in this article.

He has been the great standardizer of dentistry, for he has standardized our cavity preparation; our management of enamel walls; our methods of filling teeth; our amalgam; our instruments; our methods of technic teaching; and very largely the nomenclature of dentistry.

If we were to build a monument to modern American dentistry, we would place as one corner of the foundation Black's Dental Anatomy, the most valuable book that has ever been written upon a dental subject. As the second corner we would place Black's Operative Dentistry, his articles on the Physical Properties of the Hard Tooth Structures and of Filling Materials, and his original article on Gold Foil. For the third corner we would choose his Histology of Enamel and of the Peridental Membrane, his articles on Pathology in the American System of Dentistry, and a little book called "The Formation of Poisons by Micro-Organisms," which is a classic. (This book, unfortunately, now out of print, is the best introduction to the study of bacteriology of which we have any knowledge.) As the fourth corner of our foundation we would place the G. V. Black Club of St. Paul, and similar disciples of Black, for to the magnificent enthusiasm and energy of these men in demonstrating the practicability of his teachings, may be attributed much of the widespread interest that has been awakened in regard to Black's doctrines. The percentage of dentists who are students of dental literature and who preserve the same is much smaller than it should be; and many men who would never have been reached by means of published articles only, have been converted to Black's System of Dentistry by the efforts of the Black Club.

And now that our foundation has been erected, what shall be the superstructure? Some philosopher has said that behind every great institution will be found the lengthened shadow of one great man. So for our superstructure we will take the great student, the great teacher, the great scientist, but greatest of all the great man—Black—who is not only the greatest dentist, to whom dentistry will always point with pride, but who is likewise one of the great men of his race and age. Truly we who have known him and who love him have much to be thankful for.

THE PRESENT STATUS OF THE GOLD INLAY.*

BY DR. C. E. WOODBURY, COUNCIL BLUFFS, IOWA.

Two years ago I came to you and read a paper on the subject of "Inlays." Since that time I have had no occasion to change my views in any way. My position at that time and my position now is, that a properly made gold foil filling is the best operation for the restoration of lost tooth structure that we have, and that gold inlays should be used only where, for some reason, gold foil fillings are contra-indicated.

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*Read before the G. V. Black Club of St. Paul, February, 1910.

Two years ago cast gold inlays were a very new thing to most of us, and many extravagant claims were made for them. Since then we have had the results of two years' clinical experience and I believe that the only way cast inlays excel those which were made formerly, is in the ease of their manufacture and in their density. The inlay as formerly made by the use of crystal gold sweated full of plate proved in use to be slightly porous on account of the crystal gold not being fully saturated with the plate. But as far as fit and adaptation is concerned, they were fully equal to the cast inlays. I am convinced that a large number of the cast inlays are too large for the cavities for which they are made, and I have no satisfactory answer to the query as to why this is so.

About a year ago Dr. C. R. Baker of Davenport, Iowa, made some very interesting experiments which he presented at the last annual meeting of the Iowa State Dental Society. He prepared 28 wax models in the form of a cube from the same mould, and sent them to different operators with instructions to cast half of them into a hot mould and the other half of them into a cold mould. The largest of these inlays cast into a *hot* mould was .2036 of an inch. The smallest was .1945 of an inch. The average was .1998 of an inch. The largest of these inlays cast into a *cold* mould was .2003 of an inch. The smallest was .1944 of an inch. The average was .1980 of an inch. The same machine did not produce a uniform casting, for instance, twelve castings were made with a Taggart machine. The largest was .2003 of an inch, the smallest was .1950 of an inch. The size of the model for all of these castings was .1995 of an inch. It is my opinion that any of these castings that were larger than .1975 of an inch, could not be properly seated in the cavity, particularly if the cavity had been made with walls sufficiently parallel to be retentive. Dr. Poundstone in his experiments with cement found that between two pieces of smooth glass, cement could not be compressed thinner than .001 of an inch. This compression would be much more difficult in a cavity with square angles and parallel walls and I think that anybody is doing unusually well who will get his inlay within .002 of an inch of the cavity walls. If this view is correct then of those 28 experimental inlays, 19 were so large that they could not be set in the cavity with accuracy, and 10 of these 19 were larger than the cavity for which they were intended. These tests were not made by myself but by Dr. C. R. Baker of Davenport, Iowa, who is an enthusiastic inlay man. The truth of these figures will appeal to you more strongly if you remember your own experiences. How often have you made a wax model, correct in contour and occlusion, and when the inlay was set in the cavity with cement have been surprised to find that you not only had a contact stronger than normal but that the inlay must be ground to a considerable extent to bring the teeth into correct occlusion. This, of course, was due to the inlay being larger than the cavity and not going completely to place, thus leaving a wide cement joint at the gingival margin, under the gum where it escaped your notice.

It does not seem to me to be good judgment to discard a method by the use of which we are practically sure of results, as we are with gold foil fillings, for one in which there is so large an element of uncertainty. In my experience I have had gold inlays that looked so good that I had to go to my records to tell whether they were fillings or inlays. But these inlays are the exception, the majority are very easily seen after two years' use on account of the lack of integrity of the margin. I do not say that these margins are bad enough to endanger the inlay immediately, but they are bad enough so that they are a constant invitation to more serious trouble.

These foregoing remarks are, however, only applicable to those of us who have taken the time and undertaken the studies that are so necessary, to learn how to make good gold foil fillings. It is my opinion that ninety per cent of the men who are practicing dentistry are not able, except under the most favorable circumstances, to make a gold foil filling that will permanently seal the cavity and restore the tooth to its original condition. The 90 per cent of operators spoken of will do better work with inlays than with gold foil. But since there is a better way and since it is in almost every one's power to acquire this better way, why not do so and give our patients the best there is? It seems to me that the professional man who accepts fees from his patients without giving them in return, not the best he has to give, but, the best he can acquire to give, is no better than the political grafter who reaches his hand into the public purse.

TRIMMING FILLINGS TO FORM.*

BY DR. E. K. WEDELSTAEDT, ST. PAUL, MINN.

Mr. President and Gentlemen:—

For a little while I should like to discuss with you the subject of trimming fillings to form. It appears to me that there is nothing concerning our operations regarding which so little seems to be understood and which needs so much attention from us all. From my observation, and conversation with other men in our profession, I am led to believe that they consider that an excellent cavity preparation is the most essential thing that pertains to our operations. There are many men too who seem to believe this. These men do not realize that cavity preparation is but one of the essentials, that an equal amount of time and skill are necessary to devote to the placing and condensing of the gold, principles of instrumentation and trimming the filling to form.

Those who have ideas that cavity preparation is the principal essential pertaining to our operations may be likened to surgeons who feel that cleanliness is all there is to surgical operations. Well, we know better than this. Cleanliness is but one of the essentials just the same as is cavity preparation.

A man may be able to prepare the most excellent cavity possible but if he has not the skill and ability to properly place and condense gold, has a good working knowledge of principles of instrumentation and is able to give the filling a proper form, that man is following what Dr. Black calls a "hit or miss policy."

It is just as necessary to be familiar with one of the essentials named as it is to know about the other. Knowing a whole lot about one and a little or nothing about the other, does not help matters very much. There are a number of teachers who feel that altogether too little attention and study has been given to the various things named and too much study may have been devoted to some one of them. There are a great many operations made in cavities which have a most excellent form. The gold has been condensed to a requisite hardness but the form which has been given the completed operation, is nothing more or less than the worse thing possible. I tell you frankly, if there will be a condition of faulty environment existing when any operation is completed, disease will be invited, and that is just what we should try to prevent and forestall. Too large a per cent of the operations which have been made in the proximo-occlusal surfaces that we see, are in a condition, which, instead of inviting immunity, are inviting disease. It is not my purpose to talk of interproximal space but simply to speak of trimming fillings to form, and the modus operandi for doing this.

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*Read before the G. V. Black Club of St. Paul, February, 1910.

At the same time, attention must be called to another thing which confronts us continually and it is this thing of not obtaining separation prior to making the operation. An examination of about ninety-nine per cent of operations, which have been made in the proximo-occlusal surfaces, shows at once that the object and theory of filling these cavities is either not understood or else men have been in too great a hurry to complete the operations. This is said because it seems that the integrity and health of the tissue within the interproximal space, seldom receives the attention which it should receive. In altogether too many cases the lingual and buccal embrasures are too narrow. This is merely a condition of faulty environment, it is not necessary and as was said a moment ago, it invites disease. Such conditions not being necessary, why make them? Can you tell me why they are made?

Let me divide the essay into two parts and take typical cases.

1st.—A gold filling in the disto-occlusal surface of an upper right second bicuspid.

2d.—An amalgam filling, in a similar cavity, in a similar tooth.

First, let us suppose that the marginal condensation of the gold has just been completed, what is the next step? Why, a small saw is introduced through the inter-proximal space from buccal to lingual and any surplus gold in the gingival half of the filling removed. The sawing is not continued through to the occlusal surface.

So soon as the surplus gold is removed, a Black No. 1 or No. 2 trimmer is used to trim the filling to form. As the trimming progresses, No. 3 and No. 6 Black trimmers are used for the purpose of completing the trimming to form of the gold which lies to the lingual and buccal of the point of contact. The filling by this time should have a fairly good form. A knife should now be used and such overhanging masses of gold which may be along the gingival margin should be removed. The knife should be used with a rolling motion, thus shaving the surplus gold from the filling per se. Unless the knife is sharp it should not be used. Under no circumstances should the knife be placed under an overhanging mass of filling material and an attempt made to remove it by exerting much force. Following such unskilled methods merely leads to the fracture of the knife, whose temper is almost file hard. (Dental instruments are very delicate and as a rule they are tempered very hard, therefore, they should be used with much care. It is only under extraordinary circumstances that they need be used with any great degree of force. If the instruments are kept sharpened, as they should be, they are our best friends, otherwise they are not of much use.) Knives for trimming fillings to form should be kept in the best possible condition or they will tear the gold just as a dull razor acts to the face while you are trying to shave with it. Those of you who shave know well what this means.

The use of knives and trimmers should be continued until the filling is given that form which it is desired it should have. *The point of contact should not be disturbed* for, in trimming the gold to form, the filling is constantly being trimmed on all sides and away from it. Indeed, when the filling is completely trimmed to form the point of contact is all which separates and holds the filling from the adjoining tooth and such a point of contact is rarely larger than one mm. in diameter. Even at this time the point of contact should not be disturbed but our attention should be given to polishing the gold on the proximal surface, but not doing anything to the point of contact. Let the point of contact alone, but with strips and disks polish the gold. When this has been done, you have your choice of following one of two methods for finishing the contact point. First, you may take a sharp knife and trim the point of contact as you may wish it, later polishing it with a broad, extra fine cuttle fish strip.

Secondly, you may move the teeth slightly apart and then using a broad fine garnet strip trim the point of contact and use broad extra fine cuttle fish strip to polish it. Under no circumstances attempt to trim and polish the point of contact with a narrow strip or rotary disk or the proximal portion of the filling will be ruined.

You will observe that I have done two things, said nothing about trimming to form any portion of the filling on the occlusal surface. That special part of the operation need not be discussed because there is too little difference in the various methods in vogue for doing this, and secondly, in the method described for trimming fillings to form, the harrow has followed the plow as it should. In other words, we have instruments for trimming fillings to form and other things for polishing the filling. Some writers confuse these things and they believe that the trimming of the fillings to form should be done entirely with rotary disks and strips. I am not quite able to bring myself into that condition so as to accept this teaching. If there is no adjoining tooth in situ, why most certainly, use a rotary disk because the form which is given the filling is such that it often may be obtained more rapidly than by using any other means. But where there is an adjoining tooth, the use of trimmers is indicated, and the use of rotary disks, for such cases, is contraindicated in so far as this relates to trimming fillings to form.

And I will tell you why the use of rotary disks is contraindicated. Have you ever watched a carpenter working at his bench? Let us say that he picks up a rough oak board, he is going to make a box so he wishes a smooth surface. Does he begin by using sandpaper on it to obtain the requisite smoothness? Not he; he picks up his jack plane, and he sees to it that his plane is sharp because oak is hard and he knows that using a dull plane means extra work. Then he removes with that jack plane, the roughened surface; when the roughened surface has been somewhat reduced and the board begins to approach the size which he wishes, he picks up his smoothing plane, and he sees that it is sharp also, and then he still further smooths the board. He is not satisfied, so he picks up a cabinet scraper and still further smooths the board with it. And then what does he do? Why, he uses sandpaper. The carpenter, the machinist, the watchmaker, the jeweler, all have regular steps for finishing such things which they may make. They all set us an example which it would be well for us to think over and pattern after.

Let us leave this special part of the essay and consider the trimming to form of the amalgam filling. Let us suppose that the filling was in the disto-occlusal surface of an upper right second bicuspid. The amalgam had been placed and it had set, it is now quite hard, and if it is not hard, do not disturb it until it becomes so. We will cut the ligature holding the matrix in position and turn both the lingual and buccal portions of the matrix back toward the molar. With a sharp knife the overhanging portions of the amalgam are trimmed to form around the cavity margins. When this has been done the matrix is removed from between the teeth. The gingival two-thirds of the filling is trimmed to form by using a number seven knife. When this has been accomplished, a fine garnet strip is passed through the interproximal space and the gingival two-thirds of that filling rounded as it should be. That portion of the filling in the occlusal third is not trimmed to form. When this is done the rubber dam is removed and the amalgam on the occlusal surface trimmed to form.

Under no circumstances should the amalgam in the occlusal third of the proximal surface be trimmed to form and completely polished at the time of making the operation. If this is done, when at a subsequent sitting, the filling is polished, its size mesio-distally is again reduced and this leads to making abnormal conditions, and that is just what we are not to do. We are in the profession to take the abnormal conditions as they come to us and to, in so far as possible, and as it lies in our power, make normal conditions of them. That is our duty.

There seems to be an idea prevalent, which has gained a strong foothold among our men, and it is, that it is not necessary to trim to form and polish amalgam fillings. Permit me to say to you that it is just as necessary to properly trim and polish fillings which are made of amalgam, as it is to properly trim and polish gold fillings. No intelligent man takes defense behind such flimsy fortifications as "Amalgam is a cheap thing any way and I never waste time over it." You will pardon me, but, if a thing is worth doing it is certainly worth doing well or do not do it. And while talking about amalgam allow me to say to you, that I feel a much better class of amalgam operations would be made if the manufacturers of alloys would have three distinct grades of alloy, extra quick setting, quick setting and slow setting. The extra quick setting should, when amalgamated, set and become very hard within five minutes, the quick setting should take ten minutes to become hard and the slow setting should be hard within fifteen minutes after being placed into a cavity. The manufacturers in their zeal to please the majority of dentists have so aged their alloys that, when amalgamated, all of them take too long a time to become hard. There is one other thing, every package of alloy should be dated. We should know when it was made. Alloy four or five months old becomes too slow setting to be used.

It is not such a very difficult matter to learn to prepare cavities as they should be prepared; it requires study and care to learn how to pack gold and condense it so as to make water tight margins. The things I have just mentioned may be acquired without very much trouble if the person will study carefully those conditions with which he is continually confronted.

But to learn to trim fillings to form, well, that is a life long study and no man need expect to grasp in its entirety, this special part of our operating without making a continual study of the subject. Each of the things mentioned is only one of the fundamentals relating to operative dentistry. Each is an essential and depends on the other; violate one of them and you may as well violate all.

THE BUSINESS SIDE OF PROFESSIONAL LIFE.

BY C. N. JOHNSON, M. A., L. D. S., D. D. S., CHICAGO, ILL.

There has recently been considerable agitation of this question in the profession, and not before it was needed. The *Dental Digest* has devoted much space to it, and it was discussed at some length before the last meeting of the Illinois State Dental Society. There seems to be a healthy awakening among dentists as to the necessity of making some financial provision for old age, and this is most salutary, provided it is not allowed to degenerate into a mere greed and scramble for money irrespective of the principle which should be behind every professional transaction. The basis of true professionalism obligates a man to unselfishly relieve suffering in any emergency of life absolutely irrespective of a possible financial reward, and the digger of ditches or even the drunkard in the gutter is as much entitled to the relief of pain as is the money king of Wall street or the potentate on the throne. But this attitude of professional charity should not be allowed to drift into the evil of indiscriminate service without recompense for those who are well qualified to pay.

The spectacle has too frequently been presented to us of men growing old in the service of their profession minus the competence which is needed to soften the rigors of old age and make it at least tolerable if not delightful. I know of no experience in life more pathetic—aside from the tragedies which happen to men, and sometimes this seems almost a tragedy—than to see an old man in poverty at the end of a long professional career and compelled to try to practice under the handicap of advancing age and in the face of a too apparent lack of confidence on the part of the people. In an age when the luxuries of yesterday have become the necessities of today poverty is no longer beautiful, nor be it said is it altogether commendable. This implies no reflection upon the many noble and heroic souls of the past and the present whose genius has led them into the service of humanity without thought of financial reward and who have died or will die poor. It is merely the patent fact that today in this country enough wealth is being produced to give every man a chance to live comfortably during his working years and have enough to support him in old age.

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*Read before the annual clinic of the G. V. Black Dental Club of St. Paul, February 24-25, 1910.

And the question for our consideration at this time is, how shall the dentist do this? As I view the matter, it is the simplest thing in the world, and yet it is as certain as it is that the sun shines that there are many even among those within the sound of my voice who will not do it. Why? Because of a lack of systematic arrangement of their affairs looking to this end early enough in life to make it effective.

The first thing for a young man to do after he engages in practice is to attract to him a sufficient number of patients to keep him busy, and when this is accomplished there are many who seem to think that the problem is solved so far as a competence is concerned. But the problem is really only begun. To be busy is not necessarily to make money, to say nothing of saving it. Unless a man occupies his time profitably he is not getting ahead very fast financially, and it is just at this point that many dentists fail. Few dentists place a proper valuation upon their time, and when dentists fail to do this how can they expect patients to do it? We are gradually evolving from the practice of employing time in the treatment of teeth before operations with little or no remuneration, but there is seldom an adequate fee charged for such service as this. I was astonished on one occasion by the remark of a dentist who is prominent in the profession and who is a very fine operator. Said he: "I have spent nearly this entire day at the chair without charging up a cent." I ask him how that was, and he explained that he had been merely treating teeth preparatory for filling without completing any of the operations. Even if he had intended making a charge when the work was completed adequate to cover the treatment it is safe to predict that by the time the final charge was made the vividness of the weary day's work of treatment would have largely passed away and the sum total of the fee would never reach a just recompense for the time and energy expended.

The dentist's time is all he has out of which to make money and that time must be occupied profitably if he is going to win a competence. An appreciation of the value of time must be instilled more and more into the minds of patients before they can be expected to develop a proper regard for the value of dental service.

The statement is frequently made whenever this question is up for discussion that dental fees are too low. This is true but the mere reiteration of the statement will never remedy the condition.

Please remember that what you and I may say in discussing this question before a dental society is not going to revolutionize the situation. The people have their point of view and most justly so. However much we may despise her the fact remains that Mrs. Grundy at a quilting bee is a factor in the community. The only trouble is that many dentists—too many of them—allow Mrs. Grundy to influence them to their belittlement. The thing for us to do is to so impress the people who come under our care that they will not be influenced by the petty gossip which seems to form the chief mental pabulum of many a community. How shall we do this? Simply by performing operations for our patients that will be serviceable and reasonably permanent, and then having the courage to ask a just remuneration. And we cannot do this without throwing our heart and soul into our work and demonstrating to our patients that we are earnest and conscientious in everything we do for them.

It may be said that one dentist cannot alone work a revolution in fees and service in a community where there are others, but I say to you that he can come very nearly doing it. One dentist who is conscientious enough and strong enough and tactful enough can do wonders, but how much better it is and how much more effective where the dentists of a community sustain each other in a laudable effort to elevate the profession by doing good work and demanding adequate fees. The local dental society and good fellowship clubs all over the country are doing more good to dentistry today than any other one agency through the medium of a better understanding among dentists and a better service to the public. Dentistry will advance as it never has before when these local societies become universal.

But no matter how much the profession may advance it still remains for the individual dentist to manage his personal affairs so that he may become financially independent. He must introduce some business methods in order to succeed. It matters very little how large his fees or how much he earns if he fails to collect his accounts. Some men are so engrossed in their work, and so enraptured with the high ideals of professional achievement that they neglect the simplest essentials in the business management of their practice. Carelessness in the collection of accounts has cost many a man his competence. A dentist cannot pay his bills promptly unless he collects his accounts, and to be continually in debt is the black cloud of professional life. To let an account for dental service run too long is bad in many ways. It not only keeps the dentist out of his legitimate earnings, but the longer the account runs the less vivid is the extent or value of the service in the mind of the patient. The dentists of this country owe it to themselves as self-respecting citizens to maintain a reputation for integrity in their dealings with the world, and this can be done only by recognizing the moral obligation involved in collecting and paying bills. Let the man who has been careless in this respect in the past pause a moment and consider the effect of his carelessness on society at large and its influence on the reputation of his profession, and then let him resolve, for his own individual honor and peace of mind as well as for the general good, to reform his methods in accordance with the most approved and honorable business principles.

If it becomes necessary, as it frequently does, for a young dentist to go in debt for his equipment, he should never rest content till this debt is paid. He should economize rigidly on all those expenditures which do not jeopardize his reputation as a professional gentleman. A dentist must maintain a different appearance from the average day laborer, but he can be clean and neat without being extravagant. He should get that debt off his mind. To be perfectly square with the world is the first great step toward independence, in fact it is almost independence itself.

The next step is to begin saving. And here is the stumbling block which trips many a dentist up and leaves him sprawling and floundering helplessly through life. To be able to earn money is so much easier for most men than to be able to save it, and with professional men especially, there seems to be an utter lack of business acumen when it comes to husbanding their financial resources.

This brings up the subject of investments for professional men and it is upon this phase of the subject that I wish particularly to invite your attention. If there is any crime in all the category of business depravity more despicable than another it is the way in which professional men have been imposed upon by the mining shark, the wildcat stock broker, or the get-rich-quick promoter of every kind. It is on a par with stealing from widows and orphans because frequently the widows and orphans of professional men have been made to suffer as a consequence. The professional man has long been known as an "easy mark" for these gentry. I know of one instance where a dentist was offered a one-third interest in a broker's firm without furnishing a dollar merely for the influence he could use to induce his fellow dentists to patronize the place.

It is simply appalling when we consider the amount of hard earned money which professional men have put into worthless mining stock, Mexican plantations, stock speculations, and all sorts of worthless schemes calculated only to catch the unwary. The ingenuity of some of these promoters is really wonderful, and the very next man who approaches you with an alluring proposition to make money will have some new manner of presenting it which will make it appear that you cannot possibly lose. There is not a trick in horse trading which can equal the shrewdness displayed by these men. They frequently come apparently recommended by some of the very best citizens, and in fact some of the very best citizens are often taken in by them. If I can induce one man among all my hearers to turn the cold shoulder on every kind and species of promoter I shall feel that my trip to St. Paul has been well worth the while. I want to live to see the day when the members of my profession shall keep for themselves and their families the results of their hard earnings instead of dissipating so much of them in the support of rogues and swindlers as well as of well-meaning visionaries.

Having said this much in disapproval of certain kinds of investments it might seem proper for me to consider briefly what I deem to be a proper form of investment for professional men. I am not here to advise, but merely to suggest, and my first suggestion is that the professional man should put the next money he earns after his debts are paid into a home. Ever since I have been old enough to discuss this question with men I have heard the same old story that it is cheaper to rent than it is to own your own home, but I have studied this matter somewhat carefully as it relates to professional men, and I am convinced that it is a very great fallacy to suppose that the average professional man can invest his money so that he can make it more profitable than it will be in a home. Even if it were possible for him by shrewd investments to turn over more money than he could by owning a home there is still the civic aspect of the case which no good citizen should ignore. A man who owns his own home is anchored in the community in a different sense from the renter, and while the one may be as worthy a member of society as the other, yet the owner sustains a more permanent and responsible relationship to the community than does the renter and is more vitally interested in the welfare of the commonwealth. To own one's home gives one a sense of security which can be obtained in no other way, and so far as professional men are concerned it is confidently believed that it is the very best investment that can be made. It often proves the one sole substantial thing left of all a lifetime's earnings, and many a man in his old age has had this as a solace when all else had slipped from his grasp. In studying the financial status of dentists I have been impressed with the fact that the majority of those who have gained a competence have been those who have owned homes, and usually if they did not own homes they did not own anything.

But after the home is paid for then the dentist should aim to invest his earnings so that they will bring him returns in the way of interest. In other words he ought to make his money earn money. In seeking investments of this kind it is well for the dentist to consult with some level-headed, honest business man who has given much study to this question. If the dentist can be assured of the absolute honesty of his banker he is the logical and proper person to consult. It is his business to study investments. If the banker requires information regarding dental matters he goes to his dentist, and it ought to be just as logical for the dentist when he wishes information regarding money matters to consult his banker.

In a general way it may be said that a good class of investments for the professional man can be found in mortgages, bonds, or in long established dividend-paying stocks. Please remember that when I speak of investing in stocks I do not refer to dealing in margins. I mean buying the stock outright, placing the certificates in the safe, and going on with your professional pursuit. The man who deals in margins cannot practice dentistry properly, and usually he cannot sleep nights comfortably. Do not try to make 7 per cent., on your money unless you live far away from the great financial centers and where money is scarce. The greed for high interest leads inevitably into unsafe security. Be content with established and legitimate rates of interest, and you may rest assured that in a few years after you have turned tide so that interest flows toward you instead of away from you a legitimate interest will make you independent.

In conclusion, I bring to you the message borne in on me by years of observation that it is the natural birthright of the professional man who conscientiously does his duty by humanity to be blessed in his declining days by sufficient of this world's goods to gratify all the cultural tastes which should go with a well-rounded professional life, and that I believe this desideratum possible in every instance where a man early enough will give intelligent and consecutive consideration to the problem. I want to see my profession come into its rightful heritage and reap some of the benefits which should accrue to men who labor so faithfully in the interests of the human race.

PRESIDENT'S ADDRESS.*

BY E. H. ALLEN, D. D. S., FREEPORT, ILL.

In addressing you, the members of the Illinois State Dental Society, this morning, I am somewhat in doubt as to how I may properly bring before you what I have in mind and have been thinking about these past months.

I need not dwell at any great length on the past of this society. I will, however, express a wish that the ones who were instrumental in the organization and founding of this society, could have caught a vision of what their work was to achieve. Contrast, if you please, that first meeting in 1865 with this meeting, being the forty-sixth.

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*Read before the Illinois State Dental Society at Springfield, May 17, 1910.

Did they have any conception of what their work was to amount to? This much is certain, had the founders of this society been men of less mental caliber, had they possessed less of the true professional spirit, less honesty of purpose, less tenacity and perserverance, then the present greatness of this organization might never have been achieved.

After the organization was completed, it required careful nursing, wise administrative skill, and hard work to get the society to grow, and grow it did. In 1882, at the close of my college course, Dr. E. T. Darby asked me where I was going to locate. I said out in Illinois. He replied, "Join your state society, it is the best state society in existence." I relate this to show you how our society was regarded nearly 30 years ago. Most of the charter members have passed to the life beyond, but their work lives, and the least that can be said is that they builded better than they knew.

And so the Illinois State Dental Society went on. Always forward, just a little bit ahead of all the other similar organizations, growing in size and importance. At the meeting of 1890 the executive council came into existence and began its administration at that meeting. This was a long step in advance. The wisdom of instituting this council to transact the business of the society, and leave the meetings free for the reading of papers and discussions becomes more apparent as the years go by.

Now we come to the really great event in our history, reorganization in 1904. In this the work of Dr. Arthur D. Black was so very important that reorganization cannot be mentioned apart from his name. By this means our membership has increased to nearly 1800 at this present time and the dental profession is so well organized in Illinois that we have impressed our commonwealth with our importance to an extent never before equalled.

Not being content to rest with the knowledge that our society was ahead of all others in the matter of organization, for more effective work we have taken up and put into operation a system of post graduate study and reading which has been placed before the component societies. To make such reading more practicable there have been collected for each component society (with few exceptions), complete files of the following journals: DENTAL REVIEW, *Dental Cosmos, Items of Interest, and Dental Digest,* for five years, beginning with 1903. It is not necessary for me to go into greater detail as the plan of the course of study has been so fully explained by the committee in charge, through the medium of the monthly bulletin of this society.

In this respect, we have again taken the lead. I wonder if we will keep the lead. Will we let this great system of study fall down? Your president has gone to some effort to find out just how the post graduate course of study is used throughout the state. I have sent letters to all the secretaries of component societies, with possibly one exception, asking the following questions:

1st. To what extent is your society keeping up the post graduate course of study?

2nd. Is the post graduate course favorably thought of by the members of your society?

3rd. Are the members of your society doing any research work (original or otherwise)?

4th. Are your meetings well attended?

5th. What are some of the best outlooks for the future?

Twenty-eight letters were mailed to the secretaries of component societies, and I received thirteen replies, almost fifty per cent. Considering how hard it is for a dentist to find time to write a letter, or answer a question,—we are all such busy men,—I think I got an unusually high percentage of replies.

I learn from the secretaries that five societies are keeping up the post graduate course of study and find it very interesting and helpful. Four societies are not unanimous; a few in each of them are keeping up the course, but there seems to be no great enthusiasm. Four societies are not doing anything with the course. It is a matter of regret that more complete returns were not had from the secretaries of the component societies, as it seems as if the true situation concerning the post graduate course is not known: but this much is true, that the members of this society are not making the most of their privileges when they fail to keep up this course of study. I shall refer to this later on.

In the *Dental Cosmos*, for 1909, I think it was the October number, the editor writes deploring the fact that so little scientific investigation was being done by the dental profession in the United States. He calls attention to what seems (to him, at least) to be a fact, that the European dentists are far ahead of the American in this respect. He goes on further and says that the American dentist is satisfied with and expends his energies in working out the practical side of dentistry. The editor reads us rather a severe indictment and though we may not deserve all of it, there is, nevertheless, a great deal of truth in what he has written. This prompted me to put some more questions. Are dentists doing any research work which will solve the present day problems? Do American dentists incline more to the practical than to the scientific side of dentistry?

Dr. A. W. Thornton, of Toronto, says: "The average dentist does no research work. He is mechanical rather than scientific, but with this no fault can be found. Research work requires a trained mind, unremitting and unrewarded toil, enthusiasm, patience, courage, lofty ideals and absolute sacrifice of many of the so-called enjoyments of life, and I believe you will confess that such men are not plentiful in any calling. Yes, American dentists run to the mechanical, thank God for that. Many men seem to lose sight of the fact that we are dealing with the effect, not with the cause. This effect can be treated only by mechanical means."

Do dentists read and keep fully posted on the current literature of the day? Dr. Thornton says "No, they do not, but they probably do as much professional reading as do the members of any other profession, law and theology not excepted.

Dr. N. S. Hoff, Ann Arbor, says: "In my experience and from the testimony of others, I am compelled to conclude that the dental profession is not in the mass conversant with its own literature, especially the better sort. To cite a concrete illustration. I would call your attention to the fact that the first edition of Miller's great work on the Micro-organisms of the Mouth has never sold the first edition, and again you will find that the dental journals that furnish the most concentrated facts in the practical field of practice are the ones that have the largest circulations. The profession is either too illiterate, too lazy or too tired to read and keep posted on its own work."

Dr. R. H. Hofheinz, Rochester, N. Y., in reply to the questions, has this to say:

1st. "American dentists, as a whole, read comparatively little dental literature. Many do not even subscribe to the current periodicals; a still larger number seldom get inside the covers of those they do take; and of the remainder, the majority are satisfied with a cursory glance at the index, except for particularly interesting articles.

"The dentist who keeps fully posted on the current literature is a rarity. Our current literature, however, is somewhat to blame. It is next to an impossibility to read all dental journals published in this and other countries. Some of the very best ones, both as to literary and scientific contents, being published in foreign lands.

"There is too great a diffusion of our current dental literature in this country and that may, partly at least, account for a lack of general reading. It does, however, not excuse what Dr. W. D. Miller himself told me,—namely that less copies of his classic book on "The Micro-organisms of the Mouth" had been sold in our country than in any other civilized country into the language of which the book was translated. This is a terrible verdict on the majority of our dental readers.

"Second.—The number of dentists endeavoring to solve present day problems is very limited. By far the greater number are plodding along, content to let the other fellow do the research work. The dentist who uses up his vitality in daily dental operations, cannot well be the one to do the original research work upon which we build our future progress.

"The great research work has been done by the few who have to a great extent resigned their daily dental practice. However, thanks to these few, the numerous problems which have limited the profession are gradually being eliminated and progress along dental lines is at least equal to that along other lines.

"Third.—American dentists incline decidedly more to the practical than to the scientific field of dentistry. No greater scientific work however has been done in the world of dentistry than by such men as Miller and Black.

"Not only as dentists but as a nation we are more inclined to apply science for practical purposes, rather than search for it."

Let me entreat the members of this society to take a new interest in this post-graduate course of study and read up the current literature of our profession. For it is one of the greatest privileges ever offered the members of this or any other society. The chairman of the committee having this work in charge will make a report at this meeting, which will set the matter clearly before you.

I would like to call your attention to the educational outlook.

No, I am not going to discharge a broadside at our dental schools, not at all, but rather talk about the education of the public concerning the teeth and the importance of their preservation. Among the masses there exists the most inexcusable ignorance concerning the human teeth and the important relations they have with digestion and assimilation of food. And who is to blame for all this if not the dentists? We are confronted sometimes by some one who raises the question, "Is dentistry a profession?" It looks to me more and more that we, in our home towns, do not live and act like professional men. Being interested in the public schools, as a member of the board of education for the past five years, I am impressed with the increasing tendency of the parents to become interested in the schools, particularly when they have children in attendance. They will come out to a popular lecture, concert or some entertainment, and fill the high school auditorium to the number of five or six hundred. Why is this not the opportunity to introduce something pertaining to dentistry in a way that would be interesting and instructive to an audience of that kind? It might be something of an innovation, but I can see no good reason why it could not be made very entertaining with the lantern, throwing illustrations upon a screen which will make plain the subject of the lecture. I hope the committee on public dental education will take under consideration some way by which this might be brought before our public schools and through them get into the home life of the pupils. This being accomplished, I think we will find ourselves, as professional men, raised in the estimation of the people in the community in which we live.

Another thing—let us get out of our offices now and then and mingle with the civic affairs of our community. If we stick closely to our chair or bench and are never seen except as we go home at night or come to the office in the morning, we do not get that recognition we should have as citizens of the town. It is right and proper and the duty of every dentist to do his share of the work connected with civic affairs. Of course, we do not want to do it. It affords small remuneration for the time spent, but if you want civic affairs properly and honestly administered, get out and help do it yourself. Don't let the fellow do it who is anxious to.

One of the outlooks before the dental profession today is prophylaxis. It does not seem as if the profession would go to an extreme with this. It is difficult to conceive how the mouth and teeth could be made too clean and it is not the tendency of the dentist or patient to make it so, and while this outlook is encouraging, do we expect too much of the prophylaxis treatment in the prevention of caries? That will, no doubt, be answered a few years hence.

One great outlook is the future of our society and the influence for good that it has now and will continue to have. With your permission, I will refer to the post-graduate course of study and the indifference shown by some of our component societies concerning this course. It is a matter of regret that any condition of this sort exists anywhere within the membership of this society because indifference and carelessness in reading our literature reflects on us as individuals, and through us, upon our society. A caution should be given that it is not the intention of this course of study to exclude all other reading. That would work an injury instead of a benefit.

Dr. C. N. Johnson says: "Every dentist owes his profession a duty that he cultivate his mind to the extent that he is not merely a dentist but an individual of some culture. Every dentist who has a cultivated mind makes an impress for good upon the community and raises dentistry in the estimation of the people. We must raise our intellectual level in order to raise the status of our profession."

Those of us who feel that dentistry has not been given the place it should have as a profession would do well to give heed to the above advice.

Another outlook is suggested by a news item copied from the St. Paul Dispatch: "In all probability the next legislature will be asked by the Minnesota State Dental Society to amend the requirements for practicing dentistry by adding one year of academic work in some university to the dental college degree." I believe the time is not far distant when this requirement will be general. The Minnesota dentists, replying to the question of raising the admission standard, 290 out of 300 are in favor of the advance, and if we hope to reach the position before the world occupied by the other professions, we must also insist upon the same academic requirements that the medical or any other profession requires to enter its ranks.

A circular has been sent out by the Ohio State Dental Society relating to the Miller Memorial. This, as you doubtless know, is an effort put forth to raise funds to erect a monument to the memory of the late Dr. Willoughby D. Miller. It is hoped that the profession in the State of Illinois have liberally contributed to this fund and that a memorial suitable to the memory of so great a man as the late Dr. Miller will be erected.

In conclusion, let me say that I have not called your attention to all of the outlooks, but have enlarged more especially on those near to my heart. If the present good fellowship continues and spreads wider, and our loyalty to our society never wavers, and the love and affection for one another grows and permeates us, individually and collectively, what a great power this society will become for the uplifting of the standard of our profession, not only in Illinois but world wide.

Is it not honorable to belong to such an organization? Is it not profitable? We are responsible for this society and through it will we work out and master the problems that confront us today. Did any one ever know of a man who was an earnest worker in his profession who was not a staunch supporter of society organization? And we become better citizens, with greater loyalty to God and country, when we fulfill these obligations.

Possibly I may have been pessimistic rather than optimistic in these last words. It is not that I think there is any great occasion for alarm, because the present condition of this society is very excellent and very prosperous, but we should not allow ourselves to be blind to some of the little errors which might creep into the administration of this organization. It is because I love this society so well—it has meant so much to me—not more to me than to many of you, but for myself it has been a great field of education and so it is for any one who will open his heart to the opportunities and advantages offered by membership in this society.

PROCEEDINGS OF THE SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A special meeting was held in Handel Hall, January 28, 1910, with the president, Dr. W. H. G. Logan, in the chair.

Dr. C. N. Johnson read a paper entitled "The Selection of Filling Material and Method of Inserting When Temporary Work Need Not Be Considered."

DISCUSSION.

DR. R. OTTOLENGUI, New York City:

Mr. President, Gentlemen and Friends:—It seems to me that there has been allotted to me tonight a very pleasant and, at the same time, a very difficult task. It is a very pleasant task to be invited to meet this distinguished audience in this city, and it is a little difficult because I am asked to follow the most popular man in dentistry when I feel compelled in some sense to disagree with him. (Applause.)

I want to say, therefore, in explanation, that I will endeavor to reply to certain statements in this paper, and to express my disagreement and to give my reasons for my disagreement without at all making the assertion that Dr. Johnson is wrong and that I am right. I do not believe that my practice in my office differs very much from the practice of Dr. Johnson in his office; but, nevertheless, he has said some things to which, with your permission, I will take exception, and I will give you my reasons.

The essayist speaks of paying his compliments to the silicate cements, and I am glad to be able to agree with him so heartily in reference to that portion of the paper that I have nothing to say but "Amen!" The text of my sermon will be found on page three, verse fourteen of Dr. Johnson's paper; the paragraph which reads: "With all of the beautiful results which we are today securing with inlay work, results which we fondly hope and which we believe will prove sufficiently permanent to justify us in continuing this kind of practice, we should not forget the fact that there has been no method or material yet introduced which for absolute reliability in tooth-saving properties can be compared with a perfectly adapted, perfectly condensed, perfectly contoured, and perfectly finished gold foil filling." Dr. Johnson says further: "And I also believe that whenever this fact is lost sight of in the conduct of a practice, there is something tangible lost which militates against the greatest ultimate benefit to the patient. To gain the closest apposition of gold to the dentin and enamel walls of a cavity is to seal that cavity more securely and more permanently against leakage than is possible with any other material at our command."

Now, gentlemen, that is a plea for us to remember; the grand service of a material which has saved many teeth, the gold foil filling, and it is a good plea, and, at the same time, its very strength is its greatest weakness, for the doctor tells us that for this filling to be perfectly safe and reliable, it must be *"perfectly adapted, perfectly condensed, perfectly contoured, and perfectly finished," in order to make it reliable.* That is just exactly the doctrine we would expect from a man like Dr. Johnson, a man who can do exactly what he says whenever he inserts a gold foil filling, but it is not today the best doctrine to hand out to the young men coming into dentistry, because it has not been achieved by any very large proportion of the dental profession in the past. It has not been true that the gold foil filling in the hands of the *whole* dental profession has been as successful as it has been in the hands of men like Dr. Johnson and his peers, and consequently we must in the final analysis realize that it was not so much the gold foil fillings that have saved these teeth as it was C. N. Johnson's skill with the gold foil fillings, which has saved the teeth of his clients.

In coming down to the absolutely practical we must in our final analysis select that material, or that method, with which the greatest number of coming dentists can be taught to save the greatest number of teeth, and I unhesitatingly say that this will be the gold inlay method.

Let us consider the other part of the paragraph, which says, "to gain the closest apposition of gold to the dentin and enamel walls of a cavity is to seal that cavity more securely and permanently against leakage than is possible with any other material at our command." If that were true, we should throw all our inlays into the dust bins. But it is not true. More than twenty-five years ago an experiment was tried in New York, of filling teeth and testing the fillings for leakage, and among the men who took part in that contest were the immortal Marshall Webb, one of our greatest operators, Parmly Brown, and others of equal prominence, but whose names I do not at present recall, and your humble servant. It appeared at that time that I was not a great operator. Perhaps I never have been a great operator, but in all this work we must remember the younger men of the profession. To prove a man's greatness, it is often said, "I have seen fillings that Dr. John Doe put in thirty years ago and they are remaining well today." That proves that he was a great dentist thirty years ago when he put in those fillings. And so I mention with some hesitation the fact I participated in these contests. One test to which these fillings were put was for leakage. They were placed in aniline dyes, and *every one of them leaked so badly* that there was no choice between them. (Laughter.) I do not believe that that leakage will occur where you have cement interposed between the gold and the enamel and the dentinal walls, and consequently I do believe that with a *properly* made gold inlay we get a better sealing of the cavity than we do with any gold foil filling that ever was made. Moreover, it is a great deal easier to teach the average man to make an inlay and place it tightly in the cavity with cement interposed, considering the innumerable kinds of cavities and the innumerable kinds of patients we have to deal with, than it would be to teach the same man to seal cavities equally well with gold foil fillings.

Let us not forget the time when the amalgam fad was first introduced, and it was opposed by the army of gold foil workers. No man has stood by gold foil more loyally than I have, but it is my belief that the gold foil filling is doomed and that the majority of teeth must and will be filled and saved in the future with inlays. Then, let us not waste any more time in *discussing* it, but devote ourselves to the great problem of learning *how* to do that, which is best for our patients and do it in the best way possible. Altogether too much of our time in the past has been devoted to didactic discussions which have come to nothing. We have discussions and discussions, and people go home discussing. I believe cement, which may still be improved, is the filling material of the future, but it must be protected from the fluids of the mouth. Let us stop calling these fillings gold inlays and porcelain inlays. In one part of the mouth we have a cement filling protected by porcelain for cosmetic reasons, while in another part of the mouth we have a cement filling protected by gold. Let us learn how to obtain the best cement, and then to get the best protection for the cement by making the best gold inlay or the best porcelain inlay, in order to save them.

Dr. Johnson says: "There can be no question that a well inserted inlay is greatly preferable to a poorly inserted filling." That is a sufficient admission. There are thousands more poorly inserted fillings than there are good gold fillings. The only really perfect gold fillings are made in our own offices. (Laughter.) Dr. Johnson says that the porcelain inlay seems to have waned appreciably in professional estimate. That is true, and that is an unfortunate fact, and that brings us back to the plea I have just made. Let us stop talking and begin to learn *how*. Let us adopt one way of filling teeth instead of ten ways, and then let us concentrate all our efforts, all our activities, all our investigations towards perfecting that way. Let us become so perfect that we can make the cement lines invisible and impermeable and everlasting; then we will become artistic dentists.

I want to pay my respects now to amalgam. The doctor makes a plea for amalgam. I sympathize with him. It has been a good old servant, but I think it is time it was pensioned. I would lay down this as an epigram: the less amalgam the man allows to come in his office, the better dentist he will grow to be. As good a servant as it has been, it is the father and mother of all the slovenly dentistry we have ever had in our day. (Applause.) The doctor admits that, but he does not mean to. He makes the same kind of plea for it that he did for gold. He believes you must do almost impossible things with amalgam to make it a success; moreover, he admits that it does not appeal to the artistic dentist to do that and make it a success, and that dentists have used it for financial reasons. Now that is an odd claim. That has not been my experience. There is nothing in the world to fill teeth with that I despise more than amalgam, and there is nothing to which I have given more attention than in studying to know how to make an amalgam filling. There is nothing that has inspired me like a clean but good amalgam filling. There is nothing I have ever been so proud of as some of the amalgam fillings I have made. I have devoted so much time to amalgam that not one dentist in a thousand would have wasted the time in trying to do what I have done. I want to say, if it was possible to do these things with amalgam, it is now unnecessary to do it any more because I can in half that time save teeth with inlays instead of amalgam or shell crowns. Thanks God, we do not need to crown teeth any more, and push bands under the gums to be pulled out by dentists in the next town. (Laughter.)

One more point. Before I pass amalgam, I want to say this: when I say I tried hard with amalgam, I mean it. In the first place, I endeavored to learn as much as I could about it from Dr. J. Foster Flagg. I made trip after trip to Philadelphia and sat up night after night with Bonwill. I shall never forget how Bonwill received me. He said: "Ottolengui, are you hungry?" I said, "Yes." "Then, we will eat first and talk afterwards." Having eaten, he said, "Are you sleepy?" "No, I am not sleepy." He said, "I do not think we will get through with this before five o'clock tomorrow morning." (Laughter.) Several times I made trips to Philadelphia and sat up with Bonwill until the sun rose, hearing him tell me how to master the technic of making a perfect amalgam filling. And God bless him for what he taught me and other members of the profession about the articulation of the teeth. Today everybody is trying to do what Bonwill was trying to tell them to do. I was present when he read his first paper on articulation, and it was refused publication because it was too long. Think of that!

In addition to that, I wanted to make the kind of contours with amalgam that are now made with gold inlays. I wanted to make an amalgam filling for huge cavieties that could not be filled with gold foil, and I wanted to fill them so as to restore the occlusion, and the proximal contact, and Dr. Van Woert and I worked over the problem. We made occlusal surfaces of amalgam, packed into impressions of natural teeth; we carved up crowns of amalgam, and formulated a way of attaching these to large cavities with fresh amalgam. We had enthusiasm for amalgam, but amalgam in my hands, and in the hands of any man that had a real enthusiasm for it, *was too expensive for the rich people in New York City to pay for,* because some of us New York dentists charge by the hour, and when it takes four hours to put in an amalgam filling, in two sittings, when you can fill such cavities in one, you can not get paid for the amalgam. (Laughter.)

I wish to differ with my friend Johnson. He alludes to the fact that the one place where gold is demanded is in cavities in the buccal surfaces of molars near the gum. Now, gentlemen, I do not believe that I have filled a cavity in the buccal surface of a molar near or under the gum margin with anything but porcelain in five or six years, because there is nothing like porcelain to place near or under the gum margin. There is another reason: these cavities, if you will remember—when I say remember I mean those of you who have had such cavities filled, not those who have filled them—such cavities are nearly always very sensitive, and they are very sensitive because it is a short distance from the floor of the cavity to the surface of the pulp, and I do believe that a non-conducting material like porcelain, and one which is tolerated by the gum tissue, is absolutely the best filling material for that particular locality.

Again, Dr. Johnson describes a place where he would use amalgam, although he would prefer gold, or would use gold when he could, namely, a cavity in the proximal surface, and perhaps anchor it upon the mesial surface of the molar: the base of such cavity is wider at the gingiva than it is towards the occlusal surface. He says that to make an inlay for that place is impossible, without extreme cutting which would be vandalous. It seems odd to me that we could hear that statement from such a great dentist, in regard to cavity preparation, on the eve of a banquet to G. V. Black, because if the gold inlay has done one thing more than another, it has been to make men cut cavities wider, and I believe if there is one thing more than another that makes for success, it is the fact that what we do leave of the tooth is stronger than when we do so little cutting. The question in regard to these cavieties is not how much shall we cut away, but where shall we lay the buccal margin and the lingual margin of that cavity? I believe firmly that if, instead of tinkering with that surface, we take a disc and cut it completely away, a thing we dare not do when we put in a gold filling, because it would add two or three hours to the work. If we cut a half V-shaped space between these teeth, so as to have free access to the gingival margin, and then restore the whole contour with a gold inlay properly anchored in the occlusal surface, we will have rendered the best and most durable service we can for that patient.

Gentlemen, in conclusion, I have only to repeat what I have said before, that I believe the future of dentistry will be the adoption of a single method of filling teeth, and then we will fill them with cement and protect them with gold or porcelain. (Applause.)

Charles E. Woodbury, Council Bluffs, Iowa:

About twelve or thirteen years ago Dr. Johnson and Dr. Harper came out to Iowa and introduced the Iowa State Dental Society to the methods of Dr. G. V. Black. Tonight I again sit under his instruction. In discussing his paper I can do little more than corroborate what Dr. Johnson has told you. There are one or two points on which I differ from him, but that is to be expected and is no disparagement to either of us. The matter of personality enters so largely into every dental operation that unless you choose two men of almost equal ability and training the same law will not apply. The technique of some of our operations and particularly the manipulation of gold foil, is so difficult and requires so many years to acquire the necessary knowledge and manipulative skill that the same rules that apply to one who has preserved and cultivated this skill would not apply to one who had not.

During the last five years while engaged in Study Club work I have reviewed the work of students of most all the colleges of the middle west and many from the east and with only one or two exceptions have I found a graduate who had not had personal instruction since his graduation who could properly manipulate gold foil. I believe that it is just as necessary for a dentist who desires to achieve something above the average to have personal instruction as it is when one desires to learn the technique of piano playing. If the dentists of this country would apply themselves with the same industry to the study of technique as do the pianists there would be a great deal less talk about our patients growing restless under long operations. It seems to me too bad for us to try to hide either our incompetence or our love of ease behind the desires of a restless patient. I believe that any man who can make a perfectly adapted, perfectly condensed, perfectly contoured and perfectly finished gold foil filling can make any other dental operation well, but any one who has not mastered the technique of gold foil fillings had better stick closely to inlays and amalgam fillings as loose methods are much less disastrous with these materials than with gold foil. But for him who has mastered the details there is no joy of construction so great or operation so perfect in our profession.

I am surprised at the limitations that the essayist puts on the use of gold foil fillings and I cannot reconcile the statements he makes in different parts of his paper, as every one knows that he is a master of his art. He says in the paper and later repeats several times that "There is no material or method yet introduced which for absolute reliability and tooth-saving properties can be compared to a perfectly adapted, perfectly condensed, perfectly contoured and perfectly finished gold foil filling." Yet the essayist limits the use of this perfect method and material to occlusal surface cavities and small cavities in the front teeth. Why? Simply because the patient is liable to get restless during the operation, and yet later in the paper he says "that it should be the function of the dentist to educate the people to the idea that the best is none too good for their personal preservation and that no material," and let me add, method, "has yet been devised which is quite good enough to go into the human tooth." When almost any filling that can be made can be finished in about one and a half hours and with a nervous patient this time can be divided into two or three sittings, it does not seem to me that any one can excuse himself for using what he acknowledges to be an inferior method by the cry, "restless patient."

I am heartily in accord with what the essayist says in regard to the use of silicate cements. I feel that they must be used with caution in selected places for selected patients. The beauty of the successful fillings is so great that we are encouraged to go on; while our dismal failures hold out a restraining hand. I have great hopes for the future of this material, but some very radical changes must be made in its chemical properties. I am also with the essayist in the position in which he places porcelain inlays. They should only be used when esthetic reasons contra-indicate the use of gold.

I want to lift up my voice and say a good word for our old enemy amalgam. I believe that this despised material is saving more teeth today than all the other materials combined. It will stand more loose methods, more careless manipulation and still preserve teeth than any material that we have. It also responds nobly to good treatment and like the yellow dog licks the hand that treats it well. I am free to make the assertion, that many, myself included, are often guilty of using large gold inlays where amalgam would serve the case better.

Those of us who are trying to improve ourselves are inclined to be radicals. We are trying so hard to progress that we every once in awhile have to take a step backwards. I once heard an eminent jurist define the terms radical and conservative. "A radical," he said, "was a man who was always alert and eager to try new ways and ideas, dissatisfied with the present conditions and willing to try any change, no matter what. The radical was almost always wrong but without him no progress was made. A conservative was a man who was satisfied with things as he and his father before him had always had them and who would never do anything to change the conditions, no matter how promising the outlook. He was almost always right, but he made no advance. Between these two the radical and the conservative are the great mass of the people, holding on tenaciously to what they have but reaching out a hesitating hand for the good things the radical has left in passing."

Our radicals have appeared in recent years with extensions for prevention, cataphoresis, mummifying paste, porcelain inlays and gold inlays, each saying that this one thing takes the place of all others in its line. The conservative seeing these things said, "Take them away; we will have none of them." The great mass of the profession are saying, "Let us take the good from all and conserve it to our use. Let us employ such an exact technique with our gold foil operations that they are practically everlasting. Let us delve into the chemistry of amalgam and cement and by perfecting our formulas and improving our methods make good fillings from these much-despised materials.

Experience has taught us that the porcelain inlay is the best exemplification of that true art which disguises art. The gold inlay is now seeking its true position among our filling materials. It is knocking loudly and persistently at the portals of the most high, the holy of holies. Time alone will tell whether it will be seated on the throne or whether it must be satisfied to fill a place one step lower down the scale. At present each of us must answer this question himself. Let us use those materials and methods which our knowledge and skill best qualify us for. If we realize ourselves to be lacking in skill to use the most exacting materials, let us use the next best thing, but always look forward to the time when no method will be too exacting for our skill, no material too perfect for our demands. How perfectly has the American sage Emerson given us the truth when he says, "If a man can write a better book, preach a better sermon, or make a better mouse-trap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door."

Dr. Joseph P. Root, Kansas City, Missouri:

I believe next to the man who practices orthodontia entirely, I am the man that can tell how to put in or how not to put in gold inlays. To the best of my knowledge, Dr. Ottolengui has not put in a gold filling or gold inlay in years. He is an orthodontist. Before I get through, I want to say a few words on amalgam. While I think of it, I want to impress upon you what a great man Bonwill was. We all admit that. Any man that will sit up from five o'clock in the evening until five o'clock the next morning trying to teach one man how to put in an amalgam filling and then fail must be a great man. I do not blame that man for getting up here and saying he has never put in an amalgam filling since.

I agree with Dr. Johnson in regard to silicates. I must agree with him, because for nearly one year I was grayer than usual, and for the last two years I have been busy replacing with gold inlays those silicates that did not stay in or became discolored. I agree with Dr. Ottolengui that a poor inlay is far superior to the average gold filling. When I say poor inlay, I mean it, and when I say an average gold filling, I mean a poor filling, because the average gold filling is a poor one. We are not all Dr. Johnsons. The great trouble with gold inlays is judgment where to use them. I agree with Dr. Johnson there. They are not indicated in the anterior teeth, except in rare instances. I disagree with him in regard to their not being indicated at the gingival margin on the labial surface in the average mouth. That location is the place for them, and if there is any place where a porcelain inlay is not indicated, it is at this point, especially when by reason of the lip line, the filling will not be seen, because if there is a place where you or I cannot put in a good porcelain inlay, it is in cavities about the cervical margin, and there is where I disagree with Dr. Johnson. I think a great mistake in gold inlays is due to two things, granting the cavity preparation is right, and that is not sufficient beveling, and in not burnishing the delicate fissure edges, while the cement is setting. Failures of gold inlays in nine times out of ten will be due to these facts. I do not care if it is a poor inlay, if the cavity preparation is poorly made, if you have these fissure edges, and you burnish before the cement is set, you will have a product that will resist far longer than nine-tenths of the gold fillings that are inserted.

So far as porcelain is concerned, I agree with Dr. Johnson except in regard to that one location. I may be mistaken. Of course, this is merely my opinion.

I agree with one thing that has been said with reference to amalgam. Amalgam has saved and will save more teeth than all filling materials put together if you know how to use it, and out of this large audience, I doubt if there are fifty dentists who know how to use amalgam right. That is the reason it is a failure. Dr. Johnson cannot get the enthusiasm for amalgam that he does for porcelain. I have just as much enthusiasm for amalgam as I have for gold. There is only one thing I can do that Dr. Johnson cannot: I cannot make as good a porcelain crown as John Byram, or as good a gold crown *"away down under the gums"* as Dr. Goslee, or as good a gold filling as Dr. Johnson. But I can put in a better amalgam filling than he ever did or ever will. I can use amalgam better than the rest of you, because I believe in it. A good deal depends upon the use of the right kind of amalgam. If you use it as dry as you can get it and give attention to every detail, it will stand for years. I can show you amalgam fillings that were put in twenty years ago that are as fine and smooth today as the day they were put in, and they are not discolored or distorted. I see no reason why we should not take as much pride in amalgam when it preserves the teeth, as any other material. In fact, I take more pride in it than in a beautiful gold filling or porcelain inlay that falls out the week after it is put in. To be candid with you, I make a plea for the use of amalgam. The reason why nine-tenths of the dentists do not use more of it is because of the difference in dollars and cents. I do not let dollars and cents regulate my practice. They regulate me. I will put in an amalgam filling today that will stand and not disintegrate; it will not discolor the tooth, and it will not change its shape to bother me or my patient in any way, as much as nine-tenths of the gold fillings you put in. You can do it just as I can if you know how. There is no reason on earth for an amalgam filling undergoing discoloration in a tooth if it is put in right. There is no need of amalgam changing or shrinking or expanding to any marked degree. It will, if you throw it in, and that is the way most of you handle it, but put it in right, and you will not have trouble. Do not use amalgam in preference to the other filling materials, but use it when you must, and use it honestly, and you will get good results.

Dr. William H. Taggart, Chicago:

Mr. President, Ladies and Gentlemen: I did not expect to be called upon to take part in this discussion tonight. I do not think, however, at this time there is any necessity for making a plea for the cast gold inlay as compared with the foil, because I think the day has gone by when it is necessary; but there are so many men who are in the habit of picking out the worst cases for any kind of filling and putting limitations on them and picking out from choice a field for the gold foil. Take a case like Dr. Johnson spoke of, where the cavity was in the proximo-occlusal surface and extending wider bucco-lingually at the gingival than at the occlusal, it would look like a difficult proposition, and it would be to make that kind of cavity as one filling, but how simple it would be to take that kind and make two inlays. One inlay would extend across the occlusal surface and part way over the proximal. The other could occupy the gingival portion of the proximal surface and the wax could be pushed buccally or lingually.

So you do not cut away as much of the tooth structure as you would cut away for a foil filling. To say that so much tooth substance has to be cut away to make gold inlays is erroneous. Take a cavity, where the cavity is much larger inside than at the margin. Unsupported enamel must be cut away for a gold filling or gold inlay, but if these margins are properly prepared, as a matter of fact the inside of that cavity can be larger than the outside, and yet you can still make a good gold inlay. The way to do that is before the wax has become hard enough so that it cannot be removed to drag it out and take a knife or a lancet and cut off the drag. Put it back into the cavity, raise it in and out two or three times until you get rid of the drag and cast it as you would any other kind of filling. You have not cut away any more material than you would cut away in making gold inlays.

Dr. Henry W. Gillett, New York City:

So much interesting material has been presented to us by Dr. Johnson and those taking part in the discussion that I find it needful to confine myself to but a few of the points that have interested me.

I desire to lay additional emphasis on the value of the inlay process in frail teeth and teeth very extensively decayed.

I find myself able to use the inlay process for many teeth that I would have previously felt it necessary to crown, and its use in such cases gives me great satisfaction. Sometimes I have been able to replace ill-fitting crowns with gold inlays greatly to the benefit of the patients. With regard to the class of cavity specified by Dr. Johnson as poorly adapted to the gold inlay, I desire to note that there are several ways for successfully using the gold inlay in it besides the one described by Dr. Taggart.

The point which interested me most in Dr. Johnson's paper was his reference to the harm done by amalgam filling, by a particular type of amalgam filling. His expression on this point seemed to me inadequate. Heaven knows there has been harm enough done by amalgam fillings of that class, but is not the same man who is making these inexpressibly sloppy amalgam fillings doing exactly the same thing with cements and with gold foil, and is he not doing the same thing with gold inlays and crowns? There is something more than the question of what particular kind of filling, what particular kind of material we shall consider. Any man who will make the kind of foil filling Dr. Johnson has been talking about will make the amalgam filling that Dr. Root has talked about, and will make gold inlays of the class Dr. Taggart and Dr. Ottolengui have been talking about.

Dr. Marcus L. Ward, Ann Arbor, Mich.:

The lesson we may draw from this paper of Dr. Johnson is one of conservatism, and it is a timely contribution. The lesson we may draw from the discussion of Dr. Ottolengui is that we do not know how to use what we already have. The lesson we may draw from the remarks of Dr. Woodbury is that our formulas are wrong and we need to fix them.

There is one thing, however, that they agree on and that is the placing of silicate cement on the doubtful list. Those who are using silicate cements say they are getting pretty good results from them in small proximal cavities of anterior teeth in young patients. Silicate cement has a field and it is clear that those who use these cements must know how to use them.

There is one thing that Dr. Ottolengui has brought out which I think the profession needs to take more seriously than they have in the past, and that is the fact we are dealing with things which we do not handle properly all the time. Almost every one of you has had some sort of scientific training. You have had some chemistry at least. You have learned that two substances will unite, but do you forget when you get practicing dentistry that they only unite under certain conditions? The simplest thing you can carry out in chemistry could not be carried out unless it was under those conditions and ONLY those conditions. You could go through the whole realm of quantitative and qualitative chemistry and you would find only under certain conditions will two things unite. You have also learned that when these two things unite there is liable to be change in volume, if not a change in some other physical properties. Many of you have seen silicate cements projecting over the edges, as the color has changed, as it has dissolved out somewhat, but did you observe whether the mix was the same as you had the day before or whether the temperature was the same as you had the day before. Did you observe whether there was a more humid atmosphere than before? Do you watch these things? I doubt it very much. You have forgotten the elementary training you had received along this line.

Now, let us take up substances like the amalgam. You have to do in amalgams with five metals. Any man who knows anything about metallurgy knows the difficulty of getting two metals together twice alike and keeping them until he cools them. He knows the difficulty of getting three or four metals together, and if he puts in a fifth one which is liquid at the ordinary temperature, as we do when we introduce mercury into our alloys, the body becomes one of the most complicated ones known. We have gone beyond a place where it is possible to find out just exactly what we wish to know from a microscopical standpoint. When we compare it with some of the work of the engineer there seems no hope of finding it out if we continue to make such a mass as that meet all the demands of the dentist. This is the kind of thing the dentists are dealing with. They are dealing not merely with chemical problems but with problems that are far in advance of any commercial problem you can find. It is impossible to take up any engineering work in which one product has the demands put on it that these three products have: basic prosphates, silicates and alloys. Dentists have got to train themselves if they will use properly the products which are already put before them. This idea that our formulas are wrong is a mistake and a bad thing to get into the minds of dentists. I feel that we should learn to use what we have, before we condemn imperically the products at our disposal. Our formulas may prove to be wrong in time, but we cannot say so now.

Dr. F. F. Van Woert, Brooklyn, N. Y.:

Mr. President and Gentlemen:—It is a great privilege and pleasure to be with you this evening, and particularly a great pleasure to listen to a paper by so eminent a member of our profession as Dr. Johnson, of your city.

Dr. Johnson has always been my ideal as a "Dental Practitioner," and has always been an inspiration to me and spurred me on to better efforts, notwithstanding which I can hardly agree with him in that gold foil is the best material for filling teeth. It would seem from the discussion of his paper that the cemented filling is a new and unproven method, which is certainly a mistake. For twenty odd years, to my personal knowledge, they have succeeded in a larger percentage of cases, when resorted to, than any other method that I know of. And in no case where proper preparation was made have I known one to fail. There are so many advantages in this method of repair of teeth that it surprises me a little to think any one should dispute them.

I have predicted in the past and reiterate the same at this time that gold foil is passing away and will soon become as obsolete as many other old methods of the past. Personally, I have not inserted a gold foil filling for between seven and eight years. At the same time I never have been as busy, in my office work, which I think is a proof that I am serving the public very much better under the present than under the old method.

Amalgam has been spoken of to some extent this season, as one of the best agents for the preservation of teeth. I feel very confident that it will outlive gold foil many many years, if it ever passes away.

There is no question but that it has been the means of saving thousands upon thousands of teeth, and more important than all, it has likewise saved thousands of dentists their reputation. And if it were treated half fair its reputation would be in the front ranks with the best. That its use is diminishing at the present time, is due to the practicability of the cemented filling. And in any event it must remain in the memory of those here tonight, one of the faithful and true friends of our past.

And, in conclusion, gentlemen, I want to say, I hope next time I have the pleasure of listening to a paper by Dr. Johnson, he will have accepted the cemented filling as the standard that we may all profit from the great skill he possesses in perfecting any method he believes to be correct.

I believe the introduction of the cast gold filling, to be like the bursting of the sun rays, the dawn of a new and glorious day. It seems to me only a question as to how much more perfect it may become at the noon hour when the sun has reached its height.

DR. RUDOLPH H. HOFHEINZ, Rochester, N. Y.:

I want to ask Dr. Ottolengui a question before I proceed to discuss Dr. Johnson's paper. If the gold fillings he, Dr. Webb and others put in have all leaked, what has preserved the teeth? Why have gold fillings lasted and preserved the tooth substance for these many years?

DR. OTTOLENGUI:

It is not a question of leakage so much as it is the position of the margin of the filling that saved the tooth.

DR. JOHNSON:

What is the objection to the filling leaking, then?

DR. OTTOLENGUI:

I do not make any objection to it.

DR. HOFHEINZ (resuming):

The question arises how much more would cemented gold fillings leak in comparison to a malleted gold filling under the same test.

Dr. Ottolengui says that we should try and learn method of filling teeth. No one here is young enough who will live long enough to see one method of filling teeth sufficient for all cases in the mouth. (Applause.)

Dr. Taggart answered the question in regard to the proximal cavity which is much larger toward the cervical margin than toward the occlusal. He recommended two inlays, one for the broader part of the cavity and one for the narrower part. That cannot be done except where there is sufficient space between the two teeth to remove the wax for the cervical part, either mesially or distally. I will make a suggestion in regard to that when I discuss Dr. Johnson's paper.

Dr. Van Woert made the statement that his inlays had lasted when Dr. Strong's fillings failed. That is nothing but a conincidence. The fact that he has only filled teeth with inlays in the last eight years is not an argument contradictory to what Dr. Johnson has said in his paper.

After listening to the elegance of Dr. Johnson, the eloquence of Dr. Ottolengui, and the wit of Dr. Root, dentistry would seem to be in quite a chaotic state today. Dr. Truman, of Philadelphia, some time ago, said it was only thirty years since medical science had emerged from this chaos, and I think, if we may judge from what has been said tonight, the dental profession is not in a worse condition than the medical profession. (Laughter.) Reference has been made to gutta-percha as a temporary filling. Even permanency is relative. I have seen gutta-percha fillings prove as lasting as any fillings I know of in special places. A gutta-percha filling at the buccal part of a posterior tooth, or at the cervical wall, will last as long as any other filling material. I agree with Dr. Johnson as to the silica cements. These fillings have been a failure in my hands. I have mixed them exactly as I was instructed by the men who sell the material. I have recently changed my method of manipulation by the advice of a friend who uses them extensively. He incorporates a small amount of powder at a time with the liquid and spatulates it more thoroughly than the ordinary oxyphosphate. I have noticed an adhesiveness which under the old mix the silicate cement never has. Whether they last any longer I cannot tell at the present time. It has been a question with me whether it is faulty manipulation or misapplied chemistry. I do not think we are in a position to decide that question as yet.

In spite of what the gentlemen who have preceded me have said, in spite of the fact that I use gold inlays to a large extent, there is no material which can show better results for such a long time in preserving margins of cavities than a perfect gold filling, I do not know of any. The very fact that the cemented fillings and cast inlays last is no argument against the assertion made by Dr. Johnson in his paper, because sufficient time has not elapsed to prove it. Time is the only positive argument in this connection. I have seen porcelain inlays that were put in twenty years ago in their proper places. I hope time will prove the cast gold inlay to preserve margins just as well as gold foil.

The reason for so much argument against the gold filling is because so many practitioners have never learned how to put in a perfect gold filling. A gold filling that has half a millimeter of space or imperfect condensation between it and the cavity margin will not last for any length of time. But gold inlays and porcelain inlays that have as much cement as that between the cavity margins and the fillings themselves have lasted a great many years. Even floating islands proved relatively successful among inlays. We can do better work for some of our patients with gold inlays than we can with gold fillings. You can arrange for two or three sittings and not in any way change the result of a gold inlay, which you might do in making a gold filling. The gold filling as a rule ought to be put in, at one sitting, and ninety per cent of it must be finished before the patient is dismissed, and that particular point has a great physical bearing upon the patient.

Dr. Johnson says, "there is no question that a well-inserted inlay is greatly preferable to a poorly inserted filling." That is true fortunately and unfortunately. The ordinary operator can fortunately thus save more teeth. It is unfortunately true because it may lead to greater carelessness of manipulation. Dr. Johnson tells us that porcelain inlays seem to have waned in professional estimate. Why? For the same reason that has made the gold filling incompatible with many operators, namely, lack of knowledge or over-enthusiasm, which are both equally disastrous in any calling. The doctor in connection with porcelain inlays speaks of the unsatisfactory margins which occur in the course of time. How little does that amount to in comparison to the great esthetic purpose the porcelain inlay serves? Much of that occurrence or recurrence of marginal discoloration which takes place in almost all porcelain fillings can be removed from time to time with a stiff brush carrying a little whiting with $H_2 O_2$.

Though porcelain has many limitations, it is a surprise to me to see so many fillings remain in spite of those limitations. In a paper which I read some years ago before the Second District Society of New York, I made practically the same statement Dr. Johnson has made tonight when he says: "All cavities of anterior teeth not visible should be filled with gold."

Gentlemen, I have changed my mind considerably. Aside from the many porcelain fillings I have placed in proximal cavities, I do not know of any filling that seems to be more benign to gum tissue than porcelain. If extensive operations of gold are at all indicated in the anterior teeth, large contour work either proximally or otherwise should be done by the method of casting even at the possible discrepancy of its permanent value.

The essayist says: "The larger the cavity, the greater the leaning toward the inlay." He might have added, the more essential a perfect occlusion, the more the gold inlay is needed. If the gold inlay had served no other purpose than to enable us to give the patient perfect occlusion, which we have not been able to do with crown work to the same extent, the name of Taggart would go into the history of dentistry as immortal. (Applause.)

The essayist tells us that there is something in the character of amalgam which does not draw out the artistic and esthetic in a well-developed operator. This is unfortunately true. Whenever I see a good amalgam filling I say to myself: "This man may not be as good a manipulator of gold as myself and others, but he is an honest man and great philosopher in dentistry."

I wish to say, that in spite of the fact that I have the greatest admiration for Dr. Johnson's opinion, and in spite of the fact that I have been a manipulator of gold foil most extensively for thirty years, I believe the time has come when a great metamorphosis is taking place. The conservatism for which Dr. Johnson has stood ever since I have known him is a thing which no one can encourage too much, but there are enormous evolutionary forces which compel us to look into all methods and materials and only he who sees with large eyes will do the best work at the proper time. (Applause.)

Dr. J. D. Patterson, Kansas City, Mo.:

There is one thing that appeals to me in regard to the gold inlay and that is it cuts off thermal irritation. No mention has been made of that fact. It is very difficult in our day, looking into the history of the past and only guessing somewhat of the history of the future, to make comparisons. In fifty years more we would have an opportunity to judge between the merits of the gold filling and the gold inlay. It is quite impossible to make a reliable comparative statement now. We can only express our beliefs, and my belief is on the side of the gold inlay and cemented filling. There is one thing I have found out in regard to the best placed gold fillings in the anterior teeth with perfectly prepared cavities by the best operators in the world, that after years while they still preserve the teeth during the life time of the patient there is discoloration objectionable to the fastidious. I have taken many of these cases and replaced those fillings with gold inlays or porcelain inlays, perfectly preserving and restoring the color of the teeth. Reference has been made to the difficulty of putting in small gold inlays. There is no trouble about it at all. It is only a matter of detail of technic. I cannot agree with the statement made that the popularity of the porcelain inlay has waned, with me it certainly is used constantly. I thank you for the courtesy of being asked to speak after the reading of the fine paper.

Dr. R. Ottolengui, New York City:

I dislike very much to trespass further on your time, but I want to clear up some of the questions I answered. When Dr. Hofheinz asked me if gold fillings leaked, how did they preserve the teeth, I answered his question, and then Dr. Johnson asked, "What is the objection to a filling leaking, then?" The objection to a gold filling leaking is that eventually it will leave a discoloration around it and therefore ruin the appearance of the tooth, especially a front tooth, if filled with gold. That is the point. The salvation of a tooth does not depend upon the filling which is placed in it, nor the material placed in that tooth, but it does depend upon filling that tooth so as to prevent recurrence of decay. Where we find recurrence of decay, it does not depend so much on leakage, but it depends upon the creation of retention center, for plaques which will enable the acids to be thrown down and penetrate and dissolve between the enamel and the dentinal tubuli. Caries very rarely enters between the filling and the tooth in the same sense that the original caries is produced, unless the space between the tooth and filling is large enough to be seen with the naked eye. I believe a gold filling, properly placed, will as *thoroughly seal* the enamel margin as is *necessary,* but that the absolute water-proof sealing of it is not necessary to the prevention of caries, is proven by the fact that we seldom, if ever, see marginal decay around a gutta percha filling, *which always leaks,* so that we must go back to the doctrine of the gentleman whom we are to honor tomorrow night; we must lay our margins with a definite idea of preventing recurrence of decay, and it is the position of the margin, rather than the absence or presence of leakage which prevents decay. A gold filling and the stress of placing the gold filling, not by exceptionally skilled men like Dr. Johnson, but by the mass of the profession itself, in many cases produces weakness and fracture at the time, which causes cleavage, and that makes a beautiful retention center for the initiation of the recurrence of decay, and I believe the more the wall is sustained by the interposition of cement between the wall and filling the safer that margin will be. That, in brief, is the point I want to make.

Dr. H. E. Friesell, Pittsburg, Pennsylvania:

I would like to say in brief, that I agree fully not only as a matter of opinion, but from an experience based upon some very careful observations and research, with everything that Dr. Johnson has said in his paper and as emphasized by Dr. Gillett. I believe a good dentist can do the best work with the best material. I believe that a poor dentist can do better work with good material than he can with poor material. I believe it has never been proven or demonstrated to us that there is anything that will give more certain results, when properly used, than gold. I believe that when the requirements of foil gold, as we use it, are learned and observed, it will give exact results and I do not believe we have any other material in use that will approach the results we get from gold. The man who in understanding does not observe these requirements cannot get good results with gold, and the man who does not study and understand the requirements of gold I do not believe will have the energy or ambition or the realization of his duty to study and get results from the other materials. The man who takes up dentistry for the purpose of trying to make a living out of it in the easiest way possible will not get good results with the gold inlay, with the porcelain inlay, with amalgam or anything else. I firmly believe that leakage around any kind of filling makes a filling worthless. When it has been clearly demonstrated to us that cement is impervious to moisture, then I will have more faith in its use than I have today.

Dr. Johnson (closing the discussion):

I have been inexpressibly pleased tonight at the unanimity of opinion expressed by the different speakers. (Laughter.) I say that more seriously than you seem to think. I have been wondering what impression our patients would get if they listened to this discussion.

I fear they might think that much of the work we were doing for them was unreliable, crude and experimental, but this is not the case.

It is well to have these different views brought out once in a while to look at the other man's aspect of the case. I like to think that the gold filling has done service for more than fifty years, and I have seen some of them that have done service for more than fifty years in good condition today. I like to think of amalgam fillings that have done good service for that length of time, but we cannot go as far back in speaking of the durability of porcelain inlays and gold inlays. Many of them have done good service ever since that kind of work has been done. I am fearful that the people who read this discussion will get the impression that there is such a diversity of opinion in the dental profession that no man knows what is right to do by the people who consult him.

Dr. Ottolengui mentioned the fact that in some experimental work done in New York it was found that all the gold fillings leaked. I have as much reverence in my heart for the operators he mentioned as any man in this room, and I take off my hat to those men who have made great reputations for themselves, yet if those gold fillings leaked to the extent Dr. Ottolengui said they did, the work was not properly done. (Applause.) It was not done as it is possible to insert gold, because if there is any filling material we may insert which will hermetically seal a cavity it is gold foil. It has been done too frequently and it can be done again, and when the statement is made that it is only possible by a few of the elect to operate with gold in that way, I say that is not the view we want to take. We want to take the view that every man can be instructed to do work in this way if he will put his heart into it. It is not something that is aloof from the rank and file of the profession.

Dr. Ottolengui made a remark that he hoped to see the day when the profession would unite on one method for filling teeth. Is that correct?

Dr. Ottolengui:

Yes, I said that.

Dr. Johnson:

I would deplore the day myself if that ever did happen. There is no method that is applicable to all conditions, and the great fault of the profession is that they stick to one method too much and do not study the conditions which should govern them in the selection of any kind of filling material, no matter whether it be porcelain, gold, or amalgam. The man who does the best service for his patients is the one who takes every individual case and studies that case with the conditions presented and takes care of it in accordance with the indications of those conditions. I do not want the impression to go out that any one of these materials, or any one of these methods is so seriously at fault as has been represented here tonight. I believe that the people can be well served by the insertion of gold foil fillings under proper indications, and I believe that they can be served well under certain conditions with good amalgam fillings. A man may be enthusiastic about inlay work, as Dr. Taggart or Dr. Ottolengui, and I glory in it, yet I believe there is no filling material that is used extensively today but what will do good service to the people if dentists will operate to the highest of their ability, and I do believe the best service is done to the people by a wide study of all the conditions that are presented and by being able to take advantage of the good qualities of all materials we have in use and putting them to that use in the proper indications. (Applause.)

Just a word or two more. As I said before, the impression seems to have gone out that so much of our work is faulty. I am as conscious of the limitations of our profession as any one. I am conscious of my own limitations as much as any man, still there is no profession today that does more real fundamental good to the people of this country than does the profession of dentistry. I do not like to sit and listen to statements which may send the impression out that the dental profession is not doing good service to the people. We all have our failures and mistakes, but I see many teeth that have been saved by my predecessors, the fillings having been put in twenty, thirty and fifty years ago and are still doing good service, keeping the natural teeth in the mouth for the purpose of mastication, and I would ask is there any other profession that does better service than that for the people? Dr. Ottolengui said it was not good doctrine to teach young men to insert gold foil fillings. If there is anything in the world that will develop a young man and key him up to the highest pitch of operative skill it is the proper insertion of a gold foil filling. If there is any one thing you must watch with young men it is the tendency to do slipshod work and cover up their mistakes by inlays. You cannot cover up very much of a mistake with a gold foil filling, but you can with an inlay. If there is one thing I demand of students it is that they must learn how to manipulate gold and as one gentleman remarked in the discussions, the man who can insert a beautiful gold filling has the ability to do good inlay work.

There are many things I would like to elaborate, but as the audience has been extremely patient I will not say anything more than to thank the visitors for coming here and to welcome them to Chicago. I consider it a great compliment that so many of you have come such long distances and have turned out so well and have stayed so late. (Applause.)

REPORT OF THE ANNUAL CLINIC OF THE G. V. BLACK DENTAL CLUB OF ST. PAUL, WHICH WAS HELD IN ST. PAUL ON FEB. 24-25-26, 1910.

BY DR. E. K. WEDELSTAEDT, CHAIRMAN CLINIC COMMITTEE.

Mr. President and Gentlemen:—The clinic which closed this day will go down in the history of the dental profession as the best of all our efforts. It will go down in the history of the dental profession for it will be spoken of when some of us at least will no longer be here. Not only this, but it will be years before the work which has been started here, within the past three days, will end. Nor is this all. The standard of the operations was far in advance of any thing which we have ever presented for the consideration of the members of the dental profession. This year's clinic is going to be productive of greater results than any which we have ever held.

It did not seem possible that a higher class of dental operations could be made than you gentlemen and our friends have performed at the other clinics which we have held. But that was a mistake. Under the guiding hand of Dr. Searl he has in some way managed, since our last meeting, to pull the peg out and place it still higher than it was supposed that it could ever be placed. The operations which you made were an inspiration; they were the means of arousing the ambition of a larger body of men than you realize, to a higher endeavor and the effect of your operations will not soon be forgotten. When men like Dr. Eddy of Providence, R. I., and Dr. Friesell of Pittsburg, Pa., both so well known as leading dental educators of the East, will for three days stand beside our men and witness operations from the adjustment of the rubber dam to the completion of the operation—

well—there are a few men who feel that such an action is a compliment and that of the highest degree.

The two men just mentioned are spoken of for the reason that they themselves are no longer young men and besides this, they are teachers of the young, they came to our meeting from the far East. Most certainly there were dozens of men whose names can not be recalled just now who were also present and witnessed the skill and ability which you displayed so freely. There were men present from almost everywhere. Dr. Cohen from Boston, Mass., Dr. Small from Everett, Wash., Dr. Williams and Dr. Hart from Seattle, Dr. Clapp from New York, and those quiet modest gentlemanly men from Winnipeg, Man., Drs. Greenfield, Taylor and Campbell. What a joy those men and the three men from the far west were! Why, it was almost necessary to use force to have them go to the chairs and witness the making of any of the operations. They did not come to "butt in" but just to see what was going on. Let us hope that they really did see something and should they come again that they will make themselves at home.

Surely every state from Washington to Maine had some representative and there were any number of men from Winnipeg to St. Louis. Yes, it was a crowd of fifteen hundred men, many jolly and good natured, many serious and intent, and a few men who were exceedingly modest and afraid that they would get into somebody's way. Such a clinic was a revelation to by far the largest number of men we ever have had at our meeting. You gentlemen are to be congratulated on the success of this clinic. We should be greatly encouraged and plans should be made for the holding of another annual clinic during February, 1911.

Never was man more tired than I. For three days I have managed this great clinic and this is the night of the third day. But this report must be written now, while things are still fresh in my mind, or much may be forgotten during the busy week that is before me. And where, oh where, shall a start be made? That is the part which is the most difficult. Let me start from any place.

Mr. J. T. Ingersoll was kindness itself. To him, all the men are indebted who attended the clinic, for without Mr. Ingersoll's assistance in furnishing dental chairs, brackets, engines, etc., this organization would never have held any dental clinics. To Mr. David Perry, Mr. Ingersoll's manager, each of us owes a debt of gratitude for he arranged the clinic room. Mr. Perry made it his business to see to it that the clinic room was all prepared fifteen hours before it was to be used. And by being prepared, is meant that towels, napkins, etc., were on the chairs and brackets. This action on Mr. Perry's part was not only very nice but most thoughtful for it relieved me of much work and it also allowed me to attend to the arranging of the room in which the Table Clinics were to be held.

My compliments to the Clinic Committee. Surely Dr. Abernathy is more tired than anybody on the committee. How he and Dr. Rossteuscher did work. They were here, there and everywhere. Drs. Moyer, Holden and Grey did their best. And as far as poor Dr. Wilson is concerned—well, it will be four weeks before he will be as he was last Tuesday.

Of Dr. C. L. Topliff of Decorah, Iowa, there is much to be said. A quiet unobtrusive man who for years has attended our meetings and he has always taken part. Always done something, always ready, willing and so desirious of doing something and always doing it. Would that there were more men like him. At our last clinic he was always busy removing impacted third molars, lancing gums, giving relief where needed, in all ways which he could. Thank you, Dr. Topliff for the interest which you have taken in our work and your assistance in co-operating with us as you have done not only at this year's clinic, but at all those that you have attended in the past.

What a pleasure it was to meet and greet Drs. Black, Johnson and Friesell, especially as Dr. G. V. Black looked so well and seemed to be so pleased at being able to be with us again. Dr. A. D. Black seemed most cheerful. Dr. C. N. Johnson was just as we always find him, most delightful.

Dr. Friesell was thinking, seriously thinking too; he thinks too much, he is always in deep thought. The members of the dental profession are going to hear much of him. He is a mighty factor for that which is right and the future holds much for him or somebody is greatly mistaken.

Our essayists are now accounted for so let me to the essays, the operations and the table clinics and then I shall have finished; it's time.

ESSAYS.

The Thursday afternoon session was opened with an essay by Dr. H. E. Friesell of Pittsburg. For some time past a number of essays have appeared in our journals from the pen of Dr. Friesell and it was felt that we should enjoy an essay of high literary ability; one also which was terse, to the point and containing ideas that could not be misunderstood. It is a question if there was a man present who was prepared for what followed. We were prepared for an excellent essay, for we thought we knew the man's ability, but we were not prepared for the masterly essay which he read for our consideration. It was a surprise, and a surprise of a most pleasant nature to have a man stand there with the courage of his convictions and tell us how step by step he had laid his prejudices, regarding advanced methods to one side and, as he continued studying and observing, accepted in their entirety the Black methods. Such honesty and uprightness is not often come in contact with in these degenerate times. What a sincere man Dr. Friesell is and how deadly in earnest he is in the course which he is following. It is well for the members of this organization that such a man came to us, that such a man is in the dental profession, that his home is in Pittsburg where he is doing a grand work and that he is one of us. Would there were more men in the dental profession like Dr. Friesell, may he be spared many years to come so as to continue to carry on the work of advance as it concerns the members of the dental profession.

There is much that should be said about the essay of Dr. Friesell's but this is impossible for lack of time. Read it, and then read it again and note the struggle which he has had to convince himself that that which you are following is the highest and best, and that it tends to prolong the usefulness of the human teeth for the greatest length of time.

The next essay will be passed over.

In the evening came that grand old man with his talk on "The Interproximal Space." There he stood, dignified, lofty, superb, and delivered one of the most magnificent lectures which we have ever listened to. My! That great crowd was a compliment to his splendid genius. As some one said, "It was simply sublime." It was an inspiration to see those beautifully colored pictures with the diseased area so plainly stamped on each. It was a delight to hear his description of each diseased condition. What can I say about Dr. Black and the great work which he has done? It is only possible to repeat what so often has been said and that is not necessary. Gradually, slowly, surely and thank God before it is too late, this wise man at last is coming into his own. The men in the dental profession are beginning to recognize the wonderful ability of this genius and are honoring him as he should have been honored a quarter of a century ago. It is about time that he and his grand work were appreciated, just about time too, I feel.

Then on the morrow came that dearly loved man from Council Bluffs, Dr. C. E. Woodbury, and he told us of the experience which he had with inlays since our last meeting. He is another man who is very deadly in earnest and he is doing a grand work among the men in his section.

There is no misunderstanding what Dr. Woodbury says. He knows his subject; he knows what he wishes to convey and he conveys it so that it impresses others in the same manner as it has himself. He surely is one of the closest observers that we have in our profession and he depends wholly on his clinical experience and observation for the data which are always brought us. It was such a pleasure to have him with us again this year for we all love him so much.

It did seem to a lot of us that the discussion of Dr. Woodbury's ideas would never pass. It simply shows that inlays occupy the thought of a great many more men than a few of us realize. There is much to be said about Dr. Woodbury and his paper, but the task before me seems to be increasing instead of decreasing.

And then last, but not least, came that popular man from Chicago, Dr. C. N. Johnson. A man who is so loved by so many men and who has more friends than anybody else. In a way all his own he laid down the law and gospel regarding how old age should be made comfortable, of our duty to ourselves, to our profession, to those whom we serve and to our loved ones. In a clear forcible way it was told us and, from the discussion which followed, his ideas were surely understood. For two hours that matter was threshed out. Had it not been that so many men desired to return to their homes on the evening train, four hours more time would most certainly have been used up in attempting to interest others regarding methods of obtaining ways and means of doing away with the poverty that so often confronts those of old age who in their younger days have been careless, unfortunate or improvident. The remarks of Dr. Clapp, of New York, in regard to this subject, were as interesting as they were discouraging in regard to some particulars. That there were two sides to the question was quickly shown. That great and lasting harm has been done through a constant dwelling on the business side of dentistry, was clearly pointed out, that through the improvidence of many men in professional life, distress was brought others, was thoroughly discussed, that everybody was in duty bound to make some provision for the future, was the consensus of opinion. But it was felt that our first duty was to our patients and the dental profession and thereafter, things would take care of themselves, provided a man was provident and careful as he should be. Dr. Johnson's ideas certainly called forth a most animated discussion and his thoughts awakened a new interest in this subject. Beyond the question of a doubt a great deal of good was accomplished and results of a far reaching nature will be the outcome of his giving us his ideas on this subject.

The writer of this report is tired, he is so tired that he can scarcely think any more. Willingly would he go into greater detail regarding the essays and their writers, but the task just now is impossible. Therefore every apology is offered the good men who left their homes and their practices, who journeyed here at such an expense and assisted us in our efforts towards interesting others in the work which we feel all men should be interested in. If it were possible to think, much more would be said, but where a person is tired out and almost prostrated, his mental apparatus does not work readily. And now for the operations.

THURSDAY, FEBRUARY 24.

Dr. A. C. Searl, Owatonna, Minn.

Operation—Gold—Mesio-occlusal surface, upper left second bicuspid.

Dr. F. S. James, Winona, Minn.

Operation—Gold—Disto-occlusal surface, upper right first bicuspid.

Dr. J. W. S. Gallagher, Winona, Minn.

Operation—Gold—Mesio-occlusal surface, upper right second bicuspid.

Dr. W. D. James, Tracy, Minn.

Operation—Gold—Disto-occlusal surface, upper right first bicuspid.

Here are four operations which were made in the proximo-occlusal surfaces of bicuspid teeth. There was very little to choose between them, practically no difference in the difficulties which surrounded each case. Yet, when all the operations were completed, it would have taken an expert to observe any difference that might exist. Ninety-nine out of every hundred dentists would say that the same man had made all the operations. There is no necessity to say anything in regard to the special features concerning these operations. These men have such skill and ability, in the execution of these operations, that it is not for me to, in any manner, speak of any of the things which have been mentioned. Perhaps the words of Dr. Eddy of Providence, R. I., will fit in very nicely at this particular place. He said, "The operations which these men have made, are astounding, it is a revelation, it is an inspiration, and the one great thing about them is the freedom from pain and the ease with which they make them." This is enough.

Dr. K. E. Carlson, St. Paul, Minn.

Operation—Gold—Mesio-incisal surface, upper left lateral incisor. This was a tantalizing operation, but the way it was carried to completion and the artistic results obtained pleased every one who saw it. There is no need of my attempting to say anything of any of Dr. Carlson's operations.

Dr. F. J. Yerke, Minneapolis, Minn.

Operation—Gold—Disto-occlusal surface, upper right first bicuspid. A very difficult case on account of the peculiar formation of enamel on the occlusal surface. The cavity preparation was such as is usually obtained for these cases and it was most excellent. The completed operation was a very beautiful one which showed that the operator was a man of skill and ability.

Dr. A. C. Fawcett, Rochester, Minn.

Operation—Amalgam—Occlusal surface, lower left second molar. Pulpless tooth. There was not an operation which was made at the clinic, that received the amount of discussion that this one did, prior to the operation being made. The cavity involved almost the entire occlusal surface up to the marginal ridges. The pulp chamber had been filled with cement. In preparing the cavity Dr. Fawcett removed a considerable portion of the lingual marginal ridge and reduced the lingual wall so as to have a thick mass of amalgam to protect it when the operation was completed. This was done on account of the lingual wall being unsupported by dentin. The writer did not see the completed operation but he knows well how thorough Dr. Fawcett is, in making all dental operations, therefore, he is well aware that the finished operation was as well made as it was possible to do it.

Dr. F. S. Robinson, Chippewa Falls, Wis.

Operation—Gold—Mesio-occlusal surface, upper left lateral incisor. Dr. Robinson is another of the thorough men. He cuts most beautiful cavities, they are about as beautiful cavities as any which can be made and his operations show the high standard, which at once characterizes a man as an expert operator. Beyond this it is not necessary to say anything.

Dr. W. R. Clack, Mason City, Iowa.

Operation—Gold—Disto-occlusal surface, lower left second bicuspid. For some unknown reason, not only this year but for several years past, at each of the annual clinics, Dr. Clack has been called on to make what may be described as a "hateful" operation. It is difficult enough to make operations in the proximo-occlusal surfaces of the upper molars and bicuspids, but when it comes to taking a lower left second bicuspid and having a cavity in the disto-occlusal surface to contend with, and that at a public clinic, there are a large number of men who are willing to confess that such operations had better be made at some other time. There were quite a number of men who questioned Dr. Clack's ability to pack gold into that cavity, and there were a great many more men who said that they would use amalgam in it as they did not have sufficient ability to use gold in such a position. But Dr. Clack filled that cavity with gold and the completed operation was an elegant one.

The operation excited a good deal of comment and quite a discussion was awakened in regard to it. It seems hardly necessary to say, that a man as experienced as Dr. Clack could not make any other sort of an operation than just the one which he made at the clinic.

Dr. F. G. Richardson, Mason City, Iowa.

Operation—Cast gold inlay—Mesio-disto-occlusal surface, upper right second bicuspid.

The operation involved three-fourths of the mesial surface, the same amount of the distal surface, and all of the occlusal surface except the buccal marginal ridge. The completed operation was one of unusual beauty and it proved conclusively that Dr. Richardson knows something about inlays. Those Mason City men, Drs. Richardson, Beemer and Clack must hold dental meetings about every day, for there is not very much choice between them. When a person wishes to pick out one of them as an operator, he is puzzled, for they are all on a par. They know how to make dental operations and they know how to cast and set inlays. On this account and especially at this writing when I am so very tired, it seems unbecoming on my part to say more than that there were hundreds of men at the clinic who envied Dr. Richardson his ability to make any such operation.

It is very late, and the rest of this writing must go over until some other time, after the writer has rested. As to him, he's going to bed, he has done four men's work during the past three days.

Well, this is another day. That must have been an awful big clinic and a very difficult one to manage or else some one has done an immense amount of work, much more than is realized, for it is felt that about twenty four hours in bed would possibly help some of us—it would me, but the work is here and must be done so it may as well be finished and thus gotten rid of.

Let us to the operations of the second day and then discuss the table clinics.

FRIDAY, FEBRUARY 25.

DR. A. D. BLACK, Chicago, Ill.

Operation—Gold—Disto-occlusal surface, upper right first bicuspid. Dr. Black, at the request of a number of those who witnessed the making of his operation, used all cohesive gold. Those who have made experiments with cohesive gold, are fully aware of the difficulties of using gold in this form. More especially is this true where operations are made on the proximo-occlusal surfaces of molar and bicuspid teeth, for convenience of access is constantly decreased as the operations are distal to the mesial surface of the cuspids. Such well-known operators as Dr. G. V. Black, Dr. J. N. Crouse, Dr. Edmund Noyes, Dr. G. H. Cushing and a host of others who were in active practice a quarter of a century ago, realized fully what has just been written and they often used non-cohesive gold as a filling for the gingival third of those cavities, which were operated on, that were in the proximo-occlusal surfaces of molars and bicuspids. Moreover, it is a well known fact that the difficulties in making these operations are such as to call forth the best which there is in a man of ability, to make tight margins where non-cohesive gold has been used in the gingival third of the cavities. Now, when a man comes to a public clinic and makes such an operation with all cohesive gold, I, for one, take greatest pleasure in the world in taking off my hat to him. This statement is made for the reason that in using cohesive gold, in such a cavity as Dr. Black filled, the operator is called on to bring out every bit of expertness that a man of skill possesses so as to obtain tight margins at the gingivo-cavo-surface angle. To do this, calls for the most exacting operating. There must be quiet, so that the man can concentrate his mind wholly on what he is doing. With the crowd of men that surrounded Dr. Black while he was operating, the little room he had in which to do as he wished, the constant talking, crowding and pushing, was enough to ruffle and irritate any operator that it seemed an impossibility, under such circumstances, for anybody to accomplish that which was desired. But accomplish it he did, for everybody who witnessed the operation seemed perfectly satisfied. It is the first time in the history of the Black Club that anybody has ever attended our clinic and made an all cohesive gold filling, in the proximo-occlusal surface of a bicuspid or molar. It was a most excellent thing to have such an operation made for the men who attended the clinic could gain some idea of the differences which existed, where all cohesive gold was used for one case and a combination of non-cohesive and cohesive gold for a similar cavity. Those operating to the right and left of Dr. Black were operating on similar cavities, in similar teeth, but they were using non-cohesive foil for the gingival third of the cavities instead of cohesive foil, but they were completing their operations with cohesive gold.

Dr. F. S. James, Winona, Minn.

Operation—Gold—Mesio-occlusal surface, upper right first molar.

Dr. A. C. Searl, Owatonna, Minn.

Operation—Gold—Labial surface, lower left cuspid.

When these two gentlemen finished with their operations there remained nothing to be done, they were as perfect as the hand of man could make them, this was the opinion of so many men who witnessed the operations that it gives me greatest pleasure to say this about what they did.

Dr. J. W. S. Gallagher, Winona, Minn.

Operation—Gold—Disto-occlusal surface, upper right first bicuspid. For several years past the brunt of the burden of carrying our annual clinics has been borne by Drs. Searl, James and Gallagher. These poor men have operated on each day and usually they have had the same patient for whom to make operations. These operations have always been proximating cavities in bicuspids or in bicuspids and molars. The object of having such operations made has been to bring to the attention of those who witnessed the making of the operations, what constituted interproximal space, broad lingual and buccal embrasures and a proper point of contact.

Dr. Williams was Dr. Gallagher's patient. Somebody had taken the upper right bicuspids and in the disto-occlusal surface of the first bicuspid and in the mesio-occlusal surface of the second bicuspid, made amalgam fillings which were about one-third as broad as the teeth were thick, linguo-buccally. The contact was a broad surface contact which involved about one-half or two-thirds of the fillings. The operations, as they had been made originally, were just a mere nothing. They were even worse than that on account of the condition of faulty environment. Dr. Gallagher removed the amalgam fillings and at the first day's session, made an operation in the second bicuspid, and at the second day's session, he operated on the disto-occlusal surface of the first bicuspid. The elegance, the beauty and the symmetry which characterized these two operations, the doing away with the abnormal, and the making of normal conditions, was something which was continually spoken of by those who witnessed the making of these operations. The lesson which this clinic conveys, and which it did convey to those who delight in taking the abnormal and restoring it to normal, is most valuable. It should be something which not only makes a lasting impression but it tends to rouse the ambition of others to make similar operations. It certainly was an incentive to a higher endeavor. There is no time for further comment of these two operations, much as I should like to do so.

Dr. C. E. Woodbury, Council Bluffs, Iowa.

Operation—Gold—Occlusal surface, lower left second molar. This operation was one which the average man would have made in a little different manner. The cavity involved fully two-thirds, if not three-quarters of the occlusal surface. The lingual marginal ridge, from the mesio-lingual cusp to the disto-lingual cusp, was very nicely beveled, as the lingual wall was not protected with very much dentin. The dentin completely covered the lingual wall, but there was not very much of it. It was not over one mm. in thickness. The buccal marginal ridge between the height of the mesio-buccal and the disto-buccal cusps, was also beveled, so as to include the buccal marginal ridge. The entire pulpal wall was beautifully flat. Looking at this cavity preparation, nineteen out of twenty men, if not a greater percentage of men, would have hesitated about using gold as a filling material for such an operation. Either an inlay would have been made by the majority of men or else an amalgam filling. Neither was indicated. Gold foil is what was indicated, and is what should have been used for the making of that particular operation, just as Dr. Woodbury used it. Why? Because that was the best thing to place into the cavity, the best thing for the tooth, the easiest of all operations to make, and in the end, the best results were obtained. It did not take Dr. Woodbury fifteen minutes to place and condense the non-cohesive and cohesive foil used into that large cavity. There is not a man in the world that could have obtained a wax impression and prepared that cavity for an inlay, who could have done it in so short a time. Besides, after obtaining his wax models, it would have been necessary to have cast his inlay, and this means additional expenditure of time. Then after the inlay was cast, it would have to be fitted and polished. From the time of looking at Dr. Woodbury's completed cavity preparation, until it was announced that it was finished, was not over twenty-five minutes, so why use an inlay? It would have taken a still longer time to have made and completed an amalgam filling in the cavity because, it would have been necessary to have seen the patient the second time for the purpose of finishing the operation. It would be a good thing for the dental profession if we had about thirty thousand men in it who have the keen insight and display as excellent judgment in the making of such operations, as Dr. Woodbury makes in his daily practice.

Dr. W. G. Grandall, Spencer, Iowa.

Operation—Amalgam—Mesio-occlusal surface, upper right first molar. When attention was called to the cavity preparation there were a great many men who went over and inspected it. Dr. Crandall had a pulpless tooth to deal with, with the concomitant evils that so often surround these cases. The proximal portion of the cavity extended so that it involved the cementum. There was nothing left of the mesial surface. The disto-occlusal surface, contained an amalgam filling. The mesio-lingual and mesio-buccal cusps had been reduced full three mm., practically the entire occlusal surface was gone, so the filling was anchored occlusally, into the amalgam filling which had been made in the disto-occlusal surface. Not to speak of the condition of the gingival, axial and pulpal walls would not be right. There was a degree of intelligence introduced, in the making of the cavity preparation, that is seldom shown except by the ultra intelligent operators. The three walls just spoken of, could not have been prepared any better than they were, and it is a question if the dental profession contains fifty men who could make such a beautiful preparation as Dr. Crandall had for that cavity. A copper matrix was tied around the tooth and the amalgam was malleted to place. When the amalgam became hard, the matrix was removed and the amalgam trimmed to form. Never before in my life, with the exception of once, has it been my pleasure to inspect so beautiful an amalgam operation as Dr. Crandall made. The painstaking care which was exercised, from the beginning of this operation until its completion, is something which it is a very difficult matter for me to speak about. Of course, for the last ten years, Dr. Crandall has operated at all our annual clinics and we expected a beautiful operation, but this one he made—my what a beauty, we were not prepared for such an operation. Dr. Crandall is a man who has high ideals, and he is constantly striving to live up to them. If he did not do this it would be an absolute impossibility for him to, year after year, come to these meetings and make for us the high-class operations which he has always made. I am not writing this report for the sake of bolstering up any one man or any one man's skill and ability, but it is my desire to be fair and impartial in what is said. Therefore, when it is said that I have no words in which to do justice to this operation, I merely say what I feel. I'll not only take off my hat to Dr. Crandall, for the skill and ability which he displayed, but I'll keep it off for all time.

Further, let me say this, that it behooves about all the men who have known skill and ability and world-wide reputations, to look carefully after those reputations and to spend just a little more time and exercise just a little more care with their amalgam fillings than heretofore, or else there will be a smooch on their reputations, provided there are many more men in Iowa who are in the same class with Dr. Crandall.

Dr. F. J. Yerke, Minneapolis, Minn.

Operation—Gold—Distal surface, upper right lateral incisor.

Dr. A. M. Lewis, Austin, Minn.

Operation—Gold—Distal surface, upper right lateral incisor.

Both these gentlemen made operations in the proximal surface of upper lateral incisors. They are both men who are very well known, both are men of skill and ability. Each operation was not only a credit to the maker but a credit to the organizations with which the men are identified. Would that more of the operations that are made in similar cavities, in similar teeth would look like those which these gentlemen made.

Dr. W. H. K. Moyer, Little Falls, Minn.

Operation--Gold—Mesio-occlusal surface upper right first bicuspid. It afforded me a great deal of pleasure to examine this operation. This was done just prior to the completion of the point of contact. The cavo-surface angles which had been cut on the margins of the mesial walls of the cavity were something which it was worth going a long distance to see. In the completed operation the trimming to form of the gold was about as perfect as it was possible for anybody to trim it. The cavity margins were perfectly straight from the occlusal surface to where they joined with the gingival wall. There was no surplus gold whatever on the mesial surface excepting at the point of contact. I considered that this filling was one of the most perfectly trimmed that it has been my pleasure to see for some time. This is said because there are few fillings made in the mesio-occlusal surface of upper first bicuspids that are ever trimmed to form as they should be. Doubtless any number of other fillings at the clinic may have been trimmed as perfectly as that which Dr. Moyer made and they were trimmed to form and polished in exactly as perfect a manner as the operation of Dr. Moyer. This condition of affairs is not questioned. Dr. Moyer made the only operation in the mesio-occlusal surface of an upper first bicuspid that was made at the clinic and the operation was worthy of much study from those who examined it.

OPERATION-GOLD-DISTO-INCISAL SURFACE UPPER LEFT CUSPID.

Dr. J. V. Conzett, Dubuque, Iowa.

Dr. Conzett has been so prominent before the members of the dental profession that many men are very conversant with the high standard of the operations which he makes. I do not feel called on to say anything, except that which is very nice regarding the cavity preparation and completed filling. Dr. Conzett was very highly complimented on the skill which he displayed in the making of this operation. More than this, it does not seem necesary for me to say. Thank you, Dr. Conzett.

Dr. C. H. Robinson, Wabasha, Minn.

Operation—Gold—Mesio-incisal surface, upper left cuspid. Back in the north end of the clinic room were Drs. Robinson, Beemer, and Moyer and those who did not see their operations, lost something which they will not be able to obtain again. These men are very quiet, unpretentious operators who are very well grounded in the fundamentals and they made very beautiful operations. It would have been better if a larger crowd had tarried in that special locality and kept an eye on what was going on. The operations which were made in that northern corner, on both days of the clinic, were of vast importance to those who came to the meeting. Dr. Robinson is such a thorough man in everything which he does that it would be very unbecoming on my part to say anything except that which was exceedingly nice about his operation. He is a man who may be depended on to fulfill every obligation. The completed operation was a filling of great beauty and I cannot compliment Dr. Robinson too highly regarding it.

DR. G. M. BEEMER, Mason City, Iowa.

Dr. Beemer brought a private practice patient to the clinic. Dr. Beemer had made and set some very artistic bridges for the patient. The operations and the beautiful results which had been obtained, as well as the judgment introduced in obtaining them, are things that it is impossible to describe in words. It would be necessary to see and examine the operations so as to have anything like an apprehension of what was done for the patient. Bringing this patient to the clinic was very kind of Dr. Beemer for it gave everybody interested a chance to observe what a change could be made in conditions more especially when there was not very much left in the jaws to do with. Dr. Beemer was greatly complimented by all who examined his completed operation and it is a great pleasure for me to say "Amen" to all the kind things which were said to him.

On Saturday morning about forty of the men remained over and Drs. Searl, Fawcett and Robinson made operations. Later in the day, after lunch, Dr. Yerke read an essay for their consideration, the ideas of which called forth much discussion.

DR. SEARL'S CLINIC.

Reported by DR. J. W. GREENFIELD, Winnipeg, Man.

The cavity was in the mesio-occlusal surface of an upper left first molar. The cavity preparation was most perfect. The lingual and buccal margins were cut far enough so there would be no question in regard to obtaining marginal condensation of the gold. There was some discussion as to whether the gingival wall should not have been extended more gingivally. The ease of placing in position and wedging the first pieces of gold was remarkable. The manner of holding the plugger, three points for contact, gives complete control of the instrument.

Line of Force.—The direction of the mallet blow was always toward the margins which resulted in having the most perfect sealing of them with the gold foil. Dr. Searl fully described the various things and carried them out in his operation.

Finishing.—A small saw was used to remove the surplus gold to the gingival of the point of contact. Trimmers followed the use of the saw to give the filling the proper form. Strips and disks were used for the purpose of polishing the filling, care being used to avoid the point of contact. When all but the point of contact had been finished, separation was increased and the point of contact polished with broad strips. I was unable to be present to see the final polishing but I know one word which will express what I wish to say and it is, "perfect."

DR. A. C. FAWCETT'S CLINIC.

Reported by Dr. H. E. Friesell, Pittsburg, Pa.

Subject.—A cavity in the disto-incisal surface of an upper right central incisor. A filling had been made in the distal surface which had been anchored to place by retension pits and undercuts. The disto-incisal angle became undermined and had fractured. The retentive pits had been made deep into the axial walls. The crown of the tooth was long and the cavity extended beyond the gingival line. Cohesive gold was used throughout the operation. The filling was well made but the completed operation scarcely indicated all the difficulties that were obvious before the filling had been made. The only criticism to be offered on this operation was the use of a wedge separator instead of a traction one. The patient evidently agreed with this objection to the wedge separator.

DR. F. S. ROBINSON'S CLINIC.

Reported by Dr. K. C. Campbell, of Winnipeg.

A gold filling in the mesio-occlusal surface of an upper left first molar. Prepared after the Black methods with flat gingival and pulpal walls; with nice retentive grooves at gingivo-axial angles. The instrumentation was excellent and it resulted in obtaining finally, perfect proximal margins and these were extended sufficiently to allow for marginal condensation after the gold had all been condensed. Dr. Robinson started the operation by using non-cohesive gold cylinders in the proximal portion of the cavity. In placing the non-cohesive foil he had made sure that the ends of the cylinders faced distally so that in finally finishing the filling no portion of the gold would flake off. The entire mass of non-cohesive foil placed was not condensed, only that portion which was placed against the axial wall, the mesial ends of the cylinders were not condensed until all the gold had been placed in the cavity. In starting the cohesive foil the clinician did not begin against the noncohesive foil but started the operation in the occlusal surface. Instead of using a large mass of gold to cover the pulpal wall he started by using a small piece and so continued with small pieces until the whole pupal wall was covered. Then with large masses of gold the filling was built up until the cavity was filled. The filling was well condensed (hand mallet) and if it could be tested would probably show high specific gravity.

In placing and condensing the gold in this cavity had a well fitted matrix been used, some time would probably have been saved. After the marginal condensation the surplus gold was removed with a fine saw, care being used not to approach too closely to the point of contact lest a shoulder would result. The filling was trimmed to form with trimmers and knife and polished with strips and disks. The result was a beautifully contoured filling well condensed and with fine clear lines at all margins of the cavity.

TABLE CLINICS.

From the amount of interest which was taken in this special part of our clinic, from the attention which was given to the demonstrators and from the quiet which existed in the room, perhaps a mistake has been made in not having a larger clinic of this sort.

As in the past Dr. C. N. Johnson did a herculean work. The first day he demonstrated for three hours and the second day for nearly four hours and all the time the men were six deep around his table. It was only possible for me to get near him once and he quickly handed me what he had. There must have been twenty-five or thirty cast gold inlays in teeth which had cavities cut in their various surfaces. It was very nice of Dr. Johnson to assist on both days of the clinic not only in the table clinics room but elsewhere and we all owe him very cordial thanks for assisting in the way in which he did. I owe him very special thanks for all his help.

What a delight it was to again have Dr. F. B. Kremer of Minneapolis with us. He showed models of crown and bridge work and I feel certain that he talked himself hoarse during the three hours in which he demonstrated. It was very kind of him to come once more and assist in trying to interest others in the higher and better things as they pertain to dentistry. This club should do everything to persuade Dr. Kremer to come to its annual clinics and take an active part just as he has done in the past. He has had so much experience that it is easy for him to help others. From the crowd that surrounded his tables it is safe to say that he did a very great work. Many thanks to you, Dr. Kremer, and please come to us again for we need you.

A very quiet, modest, unassuming man is Dr. C. P. Peterson of Mankato, Minn. He is another man who demonstrated for seven hours and he told his hearers all about casting aluminum plates. From the amount of explaining which Dr. Peterson was called on to do, it is a safe thing to say that the casting of aluminum was not very well understood. Dr. Peterson had a great many models and aluminum plates which assisted him in his demonstration and he also did a great work.

Dr. B. T. Osher of Graettinger, Iowa, of his own free will came and gave us a demonstration which showed the usefulness of a little knife which he had. It was very thoughtful of him to display this useful appliance and to explain its value to us and I feel certain from the crowd whom he entertained that many men were interested in what he said.

Dr. J. A. Bliss, Ruthven, Iowa, had a number of sets of artificial teeth in various stages of occlusion and he also did a good work in interesting men towards spending more time in making artificial dentures in a much more scientific way. This was another of the excellent demonstrations.

Dr. G. F. Hauser of La Crosse, Wis., had all sorts of castings and cast attachments of every nature from a crown to a bridge. He was kept busy for three hours explaining how he had obtained such beautiful results and I am sure that all those who saw the result of Dr. Hauser's work left his table with the determination that in future there would be some better castings made than had been made in the past. It was very kind of you, Dr. Hauser, to come to our meeting and assist us and we all return many cordial thanks for your kindness.

We are all of us very greatly indebted to Dr. J. B. Ridout of St. Paul. At the first day's clinic he demonstrated various methods of making crowns. There was no mistaking that his was a popular clinic. At the second day's meeting he took crowns and bridges right from the laboratory table and gave a practical demonstration of how things should be done. He made several Richmond crowns, he soldered several bridges and then he did some casting. It was amusing. One man in my hearing said, "I knew that there was no one in the world who could beat me casting metals, but Dr. Ridout has me skinned to death." The soldering which Dr. Ridout did at this clinic was wonderful. Any number of men told me that they were never so astonished in their lives as they were at the marvelous results which he obtained and the ease with which he obtained them. Thank you, Dr. Ridout.

No less than six of the table clinicians failed to come to the meeting. Some had new arrivals in their families and some had sickness and this accounted for the smallness of the table clinic. Should another annual clinic be held it may be well to increase the number of table clinics so as to add a greater interest to this special part of our demonstration.

AFTERMATH.

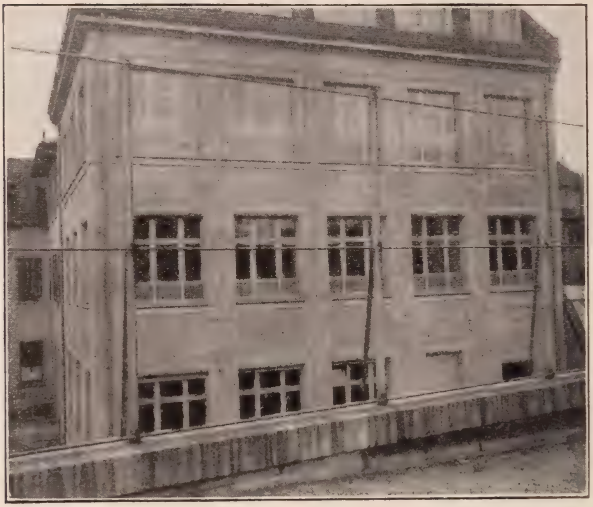
This closes another of our annual clinics and it is felt that it was the best of all which we have ever held. Should there be other annual clinics or not, is the question. That is something for you to decide. That a new impetus has been given to advance through your efforts is unquestionably true, and at what an expense! More and more men from different sections of the country are being interested in the methods which you follow. The work which we are doing is too hard, it is exhausting. Dr. Searl operated on all three days of the clinic and that is asking too much of any man. I am no longer a young man myself and this matter of being asked to carry such a meeting single handed, is altogether too great a task. Such clinics as we have been carrying on here have been carried on for years and it is a question whether there is any call on us to continue carrying them on. Most certainly if you see fit to hold a clinic next year there will be a greater interest than ever aroused, more men will attend and more good will will be accomplished.

When men will journey here from the Pacific coast and from the Atlantic coast and from practically all intermediate points of importance, it is a very great compliment to you gentlemen. I do not question but what you have accomplished a very great, a very good and a very lasting work. That, I do not question at all, because all sorts of kind things were said to me in regard to your operations which it seems to me are unnecessary to state.

I am sure that we were glad to see all our friends. To all these good people that came to help us all I can say is, "May good come to each and all of you."

I am so tired, so tired. Every apology is offered for this hastily written report. It is a mystery to me how it was ever written. But it is written and thank goodness, it is not necessary to say more.

FOREIGN DENTAL COLLEGES.



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THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

THE G. V. BLACK DENTAL CLUB CLINIC.

In this issue we publish complete the proceedings of the Midwinter Clinic of the G. V. Black Dental Club of St. Paul, and we take pleasure in calling attention to it for several reasons. First is the excellence of the matter brought before the club, the freshness and spontaniety of the proceedings and the large attendance. There is an enthusiasm and earnestness displayed at these meetings seldom met with in dental gatherings, and there is a disposition to work, and work all all the time, which makes every moment full of interest. Second, is the lesson conveyed by this organization. The work accomplished by a society of so limited a membership as this goes to prove the possibility of united effort on the part of a few men coupled with singleness of purpose and unlimited self-sacrifice. This little band of workers meet monthly, and the aggregate of miles which the members have to travel each year to do this runs into many thousands. In the winter they hold a large clinic, inviting the profession most cordially to attend. The response to the invitation this year was most gratifying, men coming from the Atlantic and the Pacific, and from the far north to the far south.

It simply shows what earnestness and enthusiasm can accomplish, and the example should be followed in other parts of the country. The men of the Black Club are an heroic band, and their names will go down in dental history as men who created an epoch in dental society effort.

MONUMENT TO DR. WELLS.

The dentists of France have erected a monument in Paris to the memory of Horace Wells, the discoverer of anesthesia. This shows a public spirit and a desire to give honor to whom honor is due, which should be emulated by the profession of America. We are inclined to become so engrossed in the activities of the present that we pay too little heed to the traditions of our profession.

It was a man in Naples, Italy, Dr. Guerini, who gave us the first comprehensive history of our profession, and now Dr. Piperno of Rome has added to this in a small work just issued which brings out new facts connected with the early history of dentistry. He shows a specimen page of a book by Michael Savonarola in 1497, in which gold fillings are mentioned. Little by little we are gaining an insight into the early history of the profession, and we owe much to the investigations of our confreres abroad for placing on record these established facts. In particular we of America are deeply indebted to our French colleagues for the monument they have erected to the immortal Wells. It shows their broad-mindedness and their philanthropy.

OUR PRACTICAL HINTS DEPARTMENT.

Our readers will notice a change in the editorship of the Practical Hints Department in this issue. Dr. G. W. Johnson, who has conducted the department ever since its inception, has been obliged to retire from practice for the present on account of ill health, and the work has been taken up by Dr. J. E. Schaefer. We bespeak for Dr. Schaefer the assistance of our readers to the extent of sending in all the practical ideas which may occur to them in the course of their daily work. Every man has some particular and handy knack of doing certain things which has helped him, and lessened his labor, and if he would only pass it along in print it would help others. It is only by the exchange of these small practical ideas that the best and most convenient way of doing things can be attained.

This department of the journal has in the past proved of unusual interest to our readers, and if every one who reads the Hints would contribute his mite it would add immeasurably to the interest and the usefulness of the department.

EDITOR'S DESK.

AN AUTOMOBILE TRIP THROUGH EUROPE.

BY DR. F. W. GETHRO, CHICAGO.

(Continued from our May Number.)

After leaving the Austrian Customs House, we proceeded over the German frontier, traveling some distance without locating the German Customs House, called Zollamt. The distance between the Customs Houses of the countries varies. Sometimes they would be within a quarter of a mile and again they would be a mile or more apart. We had reached Lindau when an officer stopped us and asked for our German license and number plate. We tried to explain that we had been looking for the Customs House, but failed to locate it. We afterward learned that the Customs House Officials had telephoned to Lindau to stop an automobile that had evaded a customs house officer. Notwithstanding the fact that I had my German triptyque, our explanations were in vain, and I was taken before the officials in Lindau. Evading a customs house officer is considered a very serious offense in Germany, and for a time it looked as though I might have

A Small Boy Drinking at Public Fountain, Nuremberg.

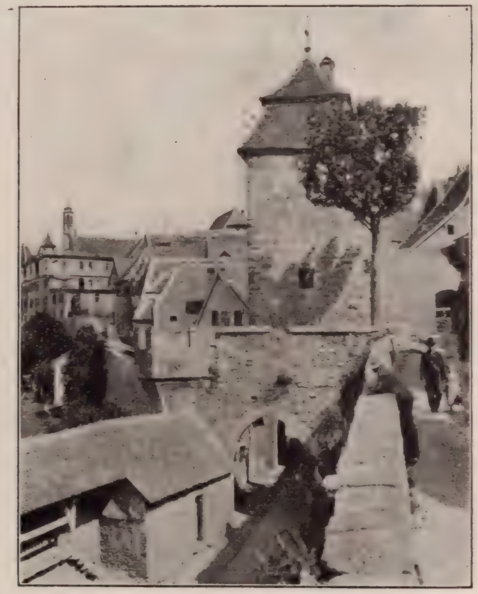
to spend the night in jail. Finally, arrangements were made so that I might go to the hotel and appear before the officials at 8 o'clock the next morning, which I did. After apparently trying my case, and writing out pages of foolscap in long hand, a procedure occupying over two hours, I signed the various papers and was fined six marks ($1.50). My German triptyque was then endorsed, German number plates placed on the machine, and we started for Munich, a distance of 117 miles. We passed through Leutkirch, Memmingen, Mindelheim, Buckloe, Landsberg, arriving at Munich at 5:30 o'clock in the evening.

The Famous Sausage House, Nuremberg.

Munich, the capital of Bavaria, with its half million people, is one of the largest and finest cities of Germany. The beautiful public buildings, the gorgeous palaces, the numerous art galleries, the museums and the many other wonderful places too numerous to mention, help to make Munich one of the most interesting cities of Germany.

After spending a day and two nights in Munich, we started for Nuremberg. Most of the roads in this part of Germany were very good, but we found those around Nuremberg decidedly second class.

Nuremberg, also spelled Nürnberg, is one of the most interesting old cities of Germany, for it has retained much of its medieval architecture. The city officials will not permit a building of modern architecture to be erected within the old walls of the city. All plans must conform to the old style of architecture. These building restrictions have prevented any change in the old appearance of the town, thus making it especially interesting to tourists. After spending the morning seeing the various sights, we visited the famous Sausage House, shown in one of the pictures, and later made our way to the Castle, on the top of the hill. The views obtained from the famous castle, which has stood on this height for so many centuries, are very impressive. Longfellow's "Nuremberg" gives a splendid description of this town and might almost be used as a guide. Nuremberg was the home of Hans Sachs, the cobbler-poet, and the painter, Albert Durer.



Showing Part of the Old Wall, Rothenburg.

From Nuremberg, we went to Rothenburg, one of the oldest medieval towns of Germany. Rothenburg has been very appropriately called the "City of Dreams." The pictures will give a very good idea of the architecture of the town.

In driving through the country part of Germany, one cannot fail

Picturesque View of Street in Rothenburg.

Another Picturesque Street View, Rothenburg.

to notice that the people are extremely courteous. The women always bowed to us and every man we met tipped his hat as we passed. Frequently men were working in the fields some distance from the road, but they never failed to give us this courtesy. Automobiling tourists are not very common in Germany.

A great percentage of the motor car tourists omit this country from their itinerary. This is easily explained, because the country is not unusually interesting, and the restrictions have always been rather severe. While they are more lenient now, the requirements are still too rigid. For instance, one has to declare how long he expects to remain in the country, and he is then charged a per-diem tax for that time. France has recently placed a tax on motor car tourists, but this tax does not apply to tourists unless they extend their stay in France beyond three months.

The Picturesque Rathhaus Door, Rothenburg.

After spending a couple of days in this artistic and most fascinating town of Rothenburg, we returned to Nuremberg and then proceeded almost north through Bayreuth, the home of Richard Wagner. We arrived in Bayreuth late in the afternoon and found that opera was being given in the Wagner Theater, which is about one mile north of the town. Automobiles are not permitted on this drive, so we drove to the theater in a horse cab, only to find that not a seat was to be had at any price. Inasmuch as we could not hear the opera and the hotels were crowded, we continued north and spent the night at Hof. Early the next morning we started for Leipsic. While the roads are excellent, the country is somewhat flat and not interesting. We took lunch at Swickau, a good sized manufacturing town. Notwithstanding this town has a population of 32,000, we found the hotels very inferior, in fact, the eating was about the poorest we had experienced on our entire trip.

At 6 o'clock we arrived in the old town of Leipsic, where we spent the night. Leipsic is one of the great musical centers of Germany and also the center of the book trade. More books are published in Leipsic than in all the other parts of Germany.

The next morning we started for Berlin.

(To be continued.)

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Removing Iodin Stains:—Iodin stains, on either fingers or clothing, may be removed by applying ammonia water.—*Carl M. Cahill, Chicago.*

To Remove Grime from One's Hands:—To remove the grime that accumulates on one's hands while doing prosthetic work, after lathering the hands well with soap add kerosene oil, and rub.—*Carl M. Cahill, Chicago.*

Suggestions for Furnishing the Office:—The office should be light and pleasant. The furnishings need not be expensive but use good judgment in selecting them. Have your carpet or rug blend with the decorations of the room. Have comfortable chairs, current literature and a few good pictures. By no means personal pictures, as your patients will not be interested in them, and it is to the welfare of the patient that you are looking.—*H. B. Pinney, Chicago.*

Relief of Pain after Applying Formo Cresol:—Severe pain following the sealing in of formo-cresol (most liable to occur in multiple rooted teeth), points to a likelihood of some vital tissue in one of the canals. Remove treatment of formo-cresol and neutralize the formalin by ammonia water. Seal in treatment of phenol compound.—*Carl M. Cahill, Chicago.*

Save Your Carborundum Dust:—Carborundum dust accumulated from grinding teeth, etc., if saved in a suitable receptacle, will be found useful for polishing rubber plates, gold plates, crowns, bridges, etc. When grinding gold appliances the dust may be saved and refined. Various appliances for saving the dust may be procured, or the dentist can make one, as best suits himself.—*G. W. Johnson.*

Treatment of Wounds After Extraction:—After the extraction of two or more adjacent teeth, approximate the buccal and lingual flaps of gum tissue with one or more cat-gut sutures, using a small full curved needle. The wound will heal much more rapidly and without the marked depressions so common when allowed to fill entirely with granulations. No attention need be paid to the sutures, as they will be absorbed.—*P. G. Puterbaugh, Chicago.*

Have an Avocation:—Every day do some reading or work apart from your profession. We fully realize how absorbing is the profession of dentistry. How applicable to it, is what Michael Angelo says, "There are sciences which demand the whole of a man, without leaving the least portion of his spirit free for other distractions," but you will be a better man and not a worse practitioner for an avocation.—*Ralston I. Lewis.*

Why I Endorse the Use of the Hand Mallet:—1st. Because I am used to that method of operating. 2d. Because it is the most definite of all methods for condensing gold. 3d. Because it is the most expeditious of all methods. 4th. Because more gold can be condensed into a cavity by its use than where other means of condensing are used. 5th. Because the hand mallet is at all times under perfect control of the assistant. 6th. Because it is the easiest of all methods for the patient. 7th. Because it is far superior to any of the mechanical mallets.—*E. K. Wedelstaedt, St. Paul, Minn.*

To Add Stability to Bandless Anterior Crowns:—To guard against root splitting in the cases of bandless anterior crowns, one method is to use an extra post in the case of cuspids and centrals (upper). This extra post can be short and not larger than 18 gauge and placed in the heavy part of the root, to the lingual of, and not directly in line with, the main post or dowel. This short post adds greatly to the stability of the crown. In the case of the upper laterals it is not generally possible to use an extra post, but for these, a part band extending around the lingual portion will be found advantageous. —*R. E. MacBoyle, Chicago.*

A Handy Instrument for Trimming Wax Inlays in Mouth:—For trimming the entire proximal portion of a wax inlay in the mouth, take an instrument shaped like a right-angle explorer and grind or file the short angle point into a square or triangular shape. This can be done so that the angles will be sharp edges, which will cut and shave the wax to form with comparative ease. This sharp point can be carried into the interproximal space quite easily and this portion of the wax, as well as at the gingival, can be shaped to the proper form with this sharp point and the sharp angular edges of the right-angle. For trimming the occlusal portion the right-angle excavators are good.—*R. E. MacBoyle, Chicago.*

Precautions to be Observed in the Application of Arsenious Acid:—In no case should arsenious acid ever be applied to an exposed dental pulp without first applying the rubber dam. Should the walls of the tooth requiring arsenical treatment be so broken down as to preclude the application of the rubber dam, without absolute dryness, cover the exposed pulp with a hollow metal cap, with a minute dressing of cotton and eugenol, intervening between exposure and cap, restoring broken walls with cement. If pain has been of recent origin, say two or three days, or is present at the time of operation, I invariably allow tooth to rest for a week before making arsenical application, that pulp congestion may at least partially subside, which it usually does when the above details are carefully carried out, the resume of which reads,—a soothing dressing, absence of pressure, hermetic sealing, eliminating irritation from saliva and impacted decomposing foodstuffs.—*Elliott R. Carpentar, Chicago.*

Using Inlay Abutments:—Where inlays are used as abutments in bridge work, the smallest change in their relation during the construction prevents the accurate adaptation of the inlays to the cavities when the bridge is finished, necessitating the separating of one or both abutments and resoldering. One of the most disturbing elements in this respect is the contraction of the solder, drawing the inlays out of relation where a large quantity of it is used. This may be overcome to a certain degree by first constructing the other parts of the bridge in such a manner that they fit very snugly against, or in between the inlays, allowing very little space for solder and thus acting as a wedge to prevent the inlays from drawing together. Then with a very small amount of solder the inlay abutments may be attached with little chance of their relation being disturbed.—*A. F. Kenney, Chicago.*

The Fitting of Lower Trays:—In fitting a tray preparatory to taking an impression of a lower edentulous mouth, I have always before me a mental picture of the anatomical outline of the inferior maxilla and the relationship of the surrounding tissues to it. Remembering that the lingual part of the ridge posteriorly is always the more difficult part of the impression to obtain, owing to the fact that it is necessary to carry the plaster well down between it and the tongue, I bend the tray so as to bring the lingual flange well down, allowing the buccal to project horizontally outward. If the buccal part of the tray is left bent in the same direction as the lingual, as we receive the trays from the supply houses, we fail to get a good impression of the lingual side of the ridge. On the examination of an anatomical specimen of an edentulous inferior maxilla, where the alveolar process has been well absorbed, we find that the buccal and superior surfaces are continuous, necessitating the foregoing procedure.—*J. E. Schaefer, Chicago.*

Emphysema·—Having recently seen one or two cases of subcutaneous emphysema about the mouth, gums, nose and eyes from accidental injection of air into the tissues, the writer desires to call the attention of the dental profession to this very definite condition and its proper designation. Many interesting cases will probably be recalled by most dentists when their attention is drawn to it. This accident is fortunately not rarely encountered and even when the phenomenon does occur, it subsides without treatment and need occasion very little alarm on the part of the operator. By emphysema (from a Greek word meaning to inflate) we usually mean the entrance of air into the subcutaneous connective tissue spaces where air and gas is not normally present in any amount. When air is forced into the subcutaneous connective tissue from careless hypodermic injections, during violent coughing spells, fits of sneezing, penetrating wounds from fractured bone ends and even sometimes the most trivial accident, the condition is at once recognized by swelling of the tissues and by the fine crackling sensation felt under gentle pressure with the finger. Air thus admitted may extend over a considerable area always, however, giving a peculiar crackling sensation of crepitation which is pathogonomic. A distinction between inflammatory oedema and true emphysema will be made with ease. Inflammatory oedema does not crackle under the finger; is quite tender and painful and there is also the history of slower onset following infection. No active treatment is needed for emphysema as has been said, and it soon subsides as the air escapes. The condition may be encountered in almost any part of the body.—*H. G. Langworthy, M. D., Dubuque, Iowa.*

MEMORANDA.

PENNSYLVANIA STATE BOARD OF DENTAL EXAMINERS

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, June 8-11, 1910. Address Dr. Nathan C. Schaefer, secretary, Dental Council, Harrisburg, Pa., for information or papers.

OHIO STATE DENTAL BOARD.

The regular spring meeting of the Ohio State Dental Board, will be held in Columbus, on June 21-23, inclusive. All persons desiring to secure licenses, should address the secretary and procure applications. Applications must be returned to the secretary, with the fee of twenty-five dollars ($25.00), not later than June 11th. For further information, address the secretary, L. L. Yonker, Bowling Green, Ohio.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

There will be a meeting of the Wisconsin State Board of Dental Examiners, for the examination of applicants for registration, beginning Monday, June 20, 1910, at 9 a. m. The examination will be held at the Marquette University, Milwaukee. Candidates should send in their application and fee of $25.00 at least ten days before meeting. For further information address C. S. McIndoe, secretary, Rhinelander, Wis.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The South Dakota State Board of Dental Examiners will hold its next regular meeting at Sioux Falls, South Dakota, July 6th, 1910, beginning at 9:00 a. m., and continuing three days. All applications for examination, together with a fee of twenty-five dollars ($25.00), must be in the hands of the secretary by June 26. Applicants who have not complied with the above will not be permitted to take the examination. G. W. Collins, secretary, Vermillion, South Dakota.

KANSAS STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the board for the examination of candidates for license to practice dentistry in Kansas will be held in Topeka, Kansas, beginning June 21, 1910, at 9 o'clock a. m. Only graduates of reputable schools, or those having practiced five years in some other state or territory are eligible. Of those from states having reciprocal agreement with Kansas, only the practical examination is required. For further information and blanks, address G. F. Ambrose, president, Eldorado, Kansas. F. O. Hetrick, secretary, Ottawa, Kansas.

THE POST-GRADUATE COURSE SCHOOL OF DENTISTRY OF BERLIN.

A post-graduate school for holders of German or foreign state certificates in dentistry was opened in April at 22 Bulowstrasse, Berlin. The instruction will be in charge of the following dentists: Dr. Konrad Cohn; Professor Dr. Dieck; Professor Guttmann, Court Dentist; Professor Hahl; H. J. Mamlok; Professor Dr. Wilh. Sachs; Dr. Erich Schmidt; Professor Dr. Schroder; Professor Dr. Williger; Willmer, Court Dentist. The new school will have 12 rooms at its disposal. Its purpose is to give all its visitors an opportunity of doing advanced scientific and practical work, of acquainting themselves with the latest improvements and inventions in surgical, technical and operative dentistry, including Rontgen diagnosis in a specially equipped Rontgen laboratory, and of familiarizing themselves with the application of these improvements by actual treatment of patients. A dental infirmary is to be connected with the school so that there will be no lack of material for instruction.

NATIONAL DENTAL ASSOCIATION CLINIC.

One of the special features of the clinic to be held in Denver will be the surgical section. An operating room will be fitted up in the Auditorium with all modern appliances. Several dental surgeons have consented to give clinics that will be of unusual interest.

All clinics and all meetings will be held in the auditorium. The rooms and arrangements for all clinics are ideal, with plenty of room and light. Dr. A. W. Starbuck, Denver, Colo., 14th and Arapahoe streets, is chairman of the local clinic committee. All clinicians will please write to him and let him know the kind of case needed, and find out what they need to take with them.

For all chair clinics, cabinets will be furnished, that the clinician may have a place to put his instruments.

We solicit clinics from any member of a state or district society, and if you have not already sent in your name and the subject of your clinic, do so at once to any member of the committee. F. O. Hetrick, chairman, Ottawa, Kansas.

RECENT PATENTS OF INTEREST TO DENTISTS.

946539. Holder for instruments, John Drexler, Milwaukee, Wisconsin.

946962. Dental crown-swaging device, Wm. H. Graham, Detroit, Michigan.

947120. Dentifrice, Winfield S. Morrison, San Francisco, California.

497378. Fastening means for artificial teeth, Thomas E. Dimelow, York, Pennsylvania.

849711. Dental casting appliance, Elza R. Stealy, Dunlap, Iowa.

948484. Dental plugging instrument, George E. Snow, Buffalo, New York.

949273. Guard for dental handpieces, Christian Hinrichsen, Kiel Germany.

949480. Dental nozzle, Edward S. Hodgson, Jr., East St. Louis, Illinois.

949540. Folding tooth brush, Frank E. Kress, St. Paul, Minnesota.

949587. Tooth brush, Raymond Ludington, Chicago, Illinois.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

AMERICAN MILLER MEMORIAL.

Honor to Whom Honor is Due.

All dentists at home and abroad are debtors to the late W. D. Miller, whose scientific mind, untiring energy and pride in American citizenship has been one of the potent factors in placing this country at the head of the profession.

Let the old adage "A prophet is not without honor save in his own country" be the exception in this instance and every loyal American be represented in a lasting memorial to his useful life.

The proposed bronze will be erected in the capital city of his native state, that he may share the well-merited distinction of being one of our greatest men.

The invitation to contribute is extended individually, and collectively through the societies of the country, and your support, both moral and financial, is urgently solicited.

In order that the work may be quickly and efficiently accomplished, contributions may be sent direct to the treasurer of the American Miller Memorial Fund:—Weston A. Price, 10406, Euclid Avenue, Cleveland, Ohio.

Executive Committee:—Edward C. Mills, Columbus, Ohio; J. R. Callahan, Cincinnati, Ohio; S. D. Ruggles, Portsmouth, Ohio.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held at The Northwestern University Dental School, corner Lake and Dearborn streets, beginning Monday, June 13th, 1910, at 9 a. m. The following preliminary qualifications shall be required of candidates to entitle them to examination by this board for a license to practice dentistry in the State of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reputable university, who enter the school or college as freshmen on or after the school year 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school or a certificate from the State Superintendent of Public Instruction, equivalent officer or deputy, acting within his proper or legal jurisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma. Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five (5) days prior to date of examination. The examination fee is twenty dollars ($20) with an additional fee of five dollars ($5) for a license. Address all communications to T. A. Broadbent, Secretary, 705 Venetian building.

NATIONAL DENTAL ASSOCIATION.

Preliminary Literary Programme.

Denver, Colorado, July 19-22, 1910.

SECTION I.

Geo. H. Wilson, Chairman, Schofield building, Cleveland, Ohio. Stanley L. Rich, Vice-chairman, Jackson building, Nashville, Tenn. B. Frank Gray, Secretary, 1003 Security building, Los Angeles, Cal. Prosthetic Dentistry, Crown and Bridge Work, Orthodontia, Metallurgy, Chemistry and allied subjects.

ESSAYS.

1. *The Laws Controlling the Behavior of Gold in Fusing and Casting.*—By Weston A. Price, Cleveland, Ohio. Discussed by Clarence J. Grieves, Baltimore, Md.; Charles Channing Allen, Kansas City, Mo.; Thomas P. Hinman, Atlanta, Ga.; C. R. Baker, Davenport, Iowa; Chas. L. Alexander, Charlotte, N. C.

2. *Anatomical and Esthetic Prosthesis.*—By J. Leon Williams, London, England. Discussed by C. R. Turner, Philadelphia, Pa.; A. W. Starbuck, Denver, Colo.; B. J. Cigrand, Chicago, Ill.; E. S. Gaylord, New Haven, Conn.; N. S. Hoff, Ann Arbor, Mich.

3. *The Bleaching of Porcelain Fillings.*—By Levitt E. Custer, Dayton, Ohio. Discussed by Joseph Head, Philadelphia, Pa.; D. O. M. LeCron, St. Louis, Mo.; Craig M. Work, Ottumwa, Iowa; H. C. Ferris, Brooklyn, N. Y.; J. Allen Smith, Colorado Springs, Colo.

4. *Deficient Development of the Deciduous Dental Arches and its Treatment.*—By J. Lowe Young, 571 Fifth Ave., New York City. Discussed by Lloyd S. Lourie, 92 State St., Chicago, Ill.; Herbert A. Pullen, 722 Main St., Buffalo, N. Y.; S. H. Guilford, Philadelphia, Pa.; F. S. McKay, Colorado Springs, Colo.; Victor H. Jackson, New York City.

SECTION II.

L. L. Barber, Chairman, 719 Spitzer building, Toledo, Ohio; Frank I. Shaw, Vice-chairman, 624 Burke building, Seattle, Wash.; F. L. Platt, Secretary, Elkan-Gunst building, San Francisco, Cal. Operative Dentistry, Nomenclature,, Literature, Dental Education, and allied subjects.

1. *The Gold Inlay from the Standpoint of a Gold Filling Enthusiast.*—By J. V. Conzett, Dubuque, Iowa. Discussed by W. H. Taggart, Chicago, Ill.; Don M. Gallie, Chicago, Ill.; J. Q. Byram, Indianapolis, Ind.; Chas. W. Rodgers, Dorchester, Mass.; J. F. Wallace, Canton, Mo.

2. *Professional Opportunity.*—By Charles Channing Allen, Kansas City, Mo. Discussed by Wm. Carr, New York City ; Thos. J. Barrett, Worcester, Mass.; V. E. Turner, Raleigh, N. C.; Chas. E. Jones, Chicago, Ill.; J. J. Wright, Milwaukee, Wis.

3. *The Metric System of Weights and Measures.*—By David Stern, Cincinnati, Ohio. Discussed by Wilbur F. Litch, Philadelphia, Pa.; John P. Buckley, Chicago, Ill.; Emory A. Bryant, Washington, D. C.; Edwin N. Kent, Brookline, Mass.

4. *Some of Our Difficulties and How to Correct Them.*—By James G. Sharp, San Francisco, Cal. Discussed by B. Holly Smith, Baltimore, Md.; A. J. Cottrell, Knoxville, Tenn.; J. Edward Chace, Ocala, Fla.; R. Boyd Bogle, Nashville, Tenn.; George R. Warner, Grand Junction, Colo.

5. *Preventive Dentistry for Children.*—By M. Evangeline Jordon, Los Angeles, Cal. Discussed by W. T. Jackman, Cleveland, Ohio; Ray D. Robinson, Los Angeles, Cal.; Arthur C. Watson, Denver, Colo.; Garrett Newkirk, Pasadena, Cal.; Celia Rich, Nashville, Tenn.

SECTION III.

Wm. Carr, chairman, 35 West Forty-sixth street, New York City; L. F. Luckie, vice-chairman, Birmingham, Ala.; Richard Summa, secretary, 410 Metropolitan building, St. Louis, Mo.

Oral surgery, anatomy, physiology, histology, pathology, etiology, hygiene, prophylaxis, materia medica, and allied subjects.

1. *The Importance of a Correct Diagnosis Before the Therapeutics of Diseases of the Dental Pulp.*—By John P. Buckley, Chicago, Ill. Discussed by Edward C. Kirk, Philadelphia, Pa.; A. H. Peck, Chicago, Ill.; F. G. Worthley, Kansas City, Mo.; John R. Callahan, Cincinnati, Ohio; Frank L. Platt, San Francisco, Cal.

2. *Stomatitis.*—By G. V. I. Brown, Milwaukee, Wis. Discussed by J. D. Patterson, Kansas City, Mo.; L. G. Noel, Nashville, Tenn.; G. V. Black, Chicago, Ill.; W. H. DeFord, Des Moines, Iowa; Thomas Edward Carmody, Denver, Colo.

3. *A Study of the Tempora-Mandibular Articulation, Cusp and Proximal Contact Points.*—By Martin Dewey, Kansas City, Mo. Discussed by A. H. Thompson, Topeka, Kan.; Wm. Bebb, Los Angeles, Cal.; W. E. Walker, New Orleans, La.; F. C. Kemple, New York City; L. P. Bethal, Columbus, Ohio; H. A. Fynn, Denver, Colo.

4. *A Review of the Dental Hygiene Movement with Suggestions for Increasing Its Efficiency.*—By Herbert L. Wheeler, New York City. Discussed by Paul G. White, Boston, Mass.; Edward Everett Haverstick, St. Louis, Mo.; J. D. Towner, Memphis, Tenn.; W. A. White, Phelps, N. Y.

Wednesday, 8 p. m., July 20th, open session devoted to oral hygiene.

Address—"*The Teeth and Health in Their Public Relations.*"—By W. A. Evans, M. D., Commissioner of Health, Chicago, Ill.

Headquarters of the association, Brown Palace Hotel. Rate: Rooms with out bath, $2.00 per day, with bath $2.50 and $3.00 per day. See official programme for information regarding other hotels, etc.

All sessions of the association, clinics and exhibits will be held in the Auditorium.

Tourists' railway rates are the best we are able to secure. Special train leaves Chicago over the Northwestern at 6 p. m., Saturday, July 16th.

Burton Lee Thorpe, President.
St. Louis, Mo.

Charles S. Butler, Recording Secretary,
Buffalo, N. Y.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, JULY, 1910. No. 7

A VIEW OF THE BUSINESS SIDE OF DENTISTRY, AND A STATEMENT AS TO THE PROFESSIONAL OUTLOOK GENERALLY.*

BY DR. E. K. BLAIR, WAVERLY, ILL.

The subject assigned me by your committee is one pregnant with interest to all of us.

From the day of matriculation at college to the last hour of practice—with but rare exceptions—we are by force of circumstances compelled to give earnest heed to the practical business side of life as well as to maintain a continuous effort to keep apace with the advancement made along scientific lines within our profession.

Interwoven into the woof and warp of our existence is this strange yet unavoidable admixture of persistent effort to attain high rank professionally on the one side and on the other to most of us the less attractive but equally necessary effort to produce a creditable showing on the business side of our ledgers.

Following these two lines of thought pointing in opposite directions, we lead dual lives, testing to the utmost our abilities in two of the greatest known fields of human endeavor. How well we have succeeded scientifically the intelligent populace knows and makes generous acknowledgment. In the field of financial effort as compared with the outside world we have scarcely made a beginning.

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*Read before the Chicago-Odontographic Society, February 15, 1910.

This is a natural condition of affairs and reflects great credit upon our profession. By successive stages we have passed from the crude doubtful and formative period of early professional life into the more advanced and matured growth of scientific attainments.

During all these years of laborious work—mastering the details of the most difficult problems it is but natural that the less attractive and least important issue should have been either forgotten or half attended to.

Indeed that such a condition exists is not a matter for profound regret, but rather a very great compliment when rightfully considered.

Definite scientific knowledge must necessarily take precedence with all high minded men and after that may reasonably come an intelligent and just consideration of the proper reward for our labors.

It is a significant fact in the progress of enlightened thought within this great profession, that one of the greatest dental societies ever formed should pause in its deliberations of purely scientific questions and set apart an hour for the consideration of the topic assigned.

With your unsurpassed record of devotion to all that looks to the advancement of dental science, no organization within our ranks has a better right to consider this subject than you, and it is hoped that the discussion to follow may be helpful to all concerned.

At the outset, let us admit that we are members of a profession, and as such our chief and only source of revenue is from the fees we collect of our patients.

This suggests to you certain limitations easily enumerated, the most important of which are scientific attainments and physical ability.

Scientific attainments that we may surmount every difficulty encountered in the year's work, and physical ability that we may fill out well rounded careers full of the rich reward to which the faithful are justly entitled.

No discussion of the "business side of dentistry and the professional outlook generally" would be complete without a slight insight into the conditions surrounding us. Let me invite your attention to the following carefully prepared table showing the total population, number of dental practitioners and the number of inhabitants to each practitioner in the several countries named:

Name of Country.	Pop.	No. of Dentists.	Pop. to Each Dentist.
U. S.	80,000,000	37,500	2,133
Haw. Isl		25	......
Phil.	7,000,000	42	171,476
Porto Rico	953,243	88	11,454
Canada	7,000,000	1,400	5.000
Cuba		500	....
Mexico		500	....
Ill. Out. Chi.	3,000,000	1,700	1,764
Chicago	2,000,000	1,500*	1,333

*Not including students.

Acknowledgments are here made to the editors of the *Cosmos* and REVIEW to the S. S. White Dental Manufacturing Company and state superintendent of Public Instruction Blair for the data submitted and it is believed you will find the figures in the table approximately correct.

At first glance it would seem that 2,133 inhabitants of the U. S. to each dentist would be a high allowance, but some account must be taken of those who rarely or never visit the dental office. The percentage varies in different localities, some as high as fifty per cent—less in others, but to those who have investigated, surprisingly large everywhere.

If this be true the number of persons old and young, rich and poor actually seeking the services of each practitioner may be reduced one-half or to one thousand and sixty-six inhabitants to each practicing dentist in the United States—882 in Illinois and 666 in Chicago. In many localities a clientele numbering eleven or twelve hundred would mean a wide field of operations, overtaxed energies and ample financial returns, but to most ambitious and deserving men less favorably located, to be so circumscribed would be discouraging indeed.

These figures present, so far as numbers may be considered, the most favorable aspect of the case.

We are graduating annually from fifty-eight colleges about 1,900 dentists, a formidable volume of new blood injected into the great body of the profession.

This is one-twentieth as many as are practicing in the United States and 200 more than we have in the great State of Illinois, outside of Chicago.

Keeping apace with the numerical growth of the profession there is an increasing demand for more and better dental service, and herein lies the future hope for high professional attainments as well as pecuniary reward. If this be an approximately correct estimate we have a pretty clear understanding of the conditions confronting the average practitioner.

It will serve to dispel any illusions that may befog the visions of those just entering the profession and will remind older practitioners of a growing condition worthy of their consideration.

We all agree that our code of ethics is none too strong—that the element of barter and trade has no place in the professional life of any respectable practitioner; that the sure road to self-respect, public approval and financial reward is a strict adherence to the highest moral precept as applied to our daily work, but this is not sufficient.

No man can live by bread alone, neither may we expect to subsist without ample compensation for our work. It may seem like carrying coals to Newcastle to refer to this phase of the subject in this presence, but we are not dealing with local but general conditions.

Drawing aside the professional curtain and glancing at the outer or unprofessional world we observe the rest of busy humanity is engaged in a study of "field of operations," "capital invested," "estimated profits," "conservation of resources," etc., etc.

How is it with us? Sure the field of operation is broad enough, the capital invested is all we have, both intellectual, physical and financial, the net profit small indeed compared with other occupations.

The public generally regards a large part of the professional services rendered by the members of our profession as what might be termed fixed or regular operations, generally understood and devoid of any unusual or mystifying characteristics.

A general knowledge of the cost of the materials used and the time required to complete the work is public property. The only variation as to the proper fee to be charged for such professional service, is determined by the *layman's* opinion of the quality of the service rendered—the lack of discomfort during the operation, the appearance of the operating room and the personal characteristics of the operator. In the past there has been a wide variation in these peculiar and impressionable characteristics—oftentimes supplying those possessing the most attractive qualities and insurmountable advantage—but today and in the near future there is to be, as a result of higher educational facilities, a wonderful leveling of all of the elements—scientific—physical and personal that make for successful professional careers.

We must take cognizance of this fact as we view the business side of dentistry and the professional outlook generally.

With increasing force we will realize, as the years roll by, that there is greater need of concerted action touching all matters of vital importance within our ranks than ever before. The higher standards, exacted of matriculants, the thorough course of training during pupilage and the splendid equipments so easily obtained from the manufacturing world all give promise of a high and uniform average of professional service, eliminating in a marked degree any special advantage to any great number and forcing the rank and file into one great army of co-workers.

With the average standard of practitioners mounting higher and higher—the number of people to each dentist lessening annually, conservation of resources within our own field of labor will become an important problem that must be met boldly and intelligently.

Fortunately the profession is better prepared to assume the aggressive now than heretofore.

After years of persistent effort desirable legal enactments have been obtained in a large majority of the states. Not without years of strenuous effort—promising but little at the outset—later readily secured in conjunction with similar laws applicable to other interests.

How may we best conserve the interests of the profession? Chiefly through educational and fraternal courses.

Admission to the ranks of the profession ought to be vouchsafed only to those who measure up to the standard of excellence that give unmistakable promise of high ideals; of future close observance of proper ethical relations.

The more capable, the more learned the practitioner, the less danger will there be of a lowering of standards detrimental to the public and profession alike.

This is an axiomatic truth and should become a widely accepted fact, increasing the public faith in the dental profession and spurring every practitioner to a renewed consecration of his best energies for the general uplift.

The efforts of our colleges to direct the future course of the student and graduate into ethical channels should be vigorously supplemented by the dental societies of the whole country. No class of co-workers are so well organized into fraternal societies as the dental profession. As an educational force they rank second only to our institutions of learning and are unequaled in all that pertains to the acquirement of post graduate scientific knowledge.

Acting in unison our institutions of learning and these thoroughly organized dental societies could be made a most potential force in weeding out of existence those harmful elements whose chief object seems to be to lower standards of professional excellence and threaten the welfare of reputable practitioners.

At present there are two contending forces visible in our profession. The one greatly preponderating element strives to serve intelligently and faithfully the public, asking in many instances less than moderate compensation for the service rendered—the other, prompted by some ulterior and in this enlightened age, undefinable motive, is daily striving by both precept and practice to tear down and destroy all, so far as our profession is concerned, that makes for the betterment of the whole human race.

In the light of twentieth century progress they would be mildly termed reactionaries.

It may seem that their publicly professed ability to furnish high class professional service and first class materials at less than bargain counter rates is not worthy of notice, when we consider how few they be compared to the great mass of reputable practitioners. Eliminate their use of printers' ink—a formidable method of misguiding the public and soon we would see and hear no more of them, but so long as they enjoy a monopoly of this method of influencing the public—just this long will it be a task to correct wrong impressions so disseminated.

Many of them are misguided men seeking to temporarily bridge over financial distress, others are possessed of that erroneous idea that it is possible to successfully apply the rules governing mercantile pursuits to professional services rendered. Measured only by the degree of publicity given to their claims, they should be an object of consideration as we seek to improve the business outlook of the profession generally.

It will be far better to educate the profession to place a just estimate upon the value of their services than to try to disabuse the public of harmful conclusions constantly drawn from unreliable sources.

It is not always the self advertised reactionary who interferes with the business side of dentistry and clouds the professional outlook generally.

Another and important condition existing, that should be given earnest and very general consideration, is the tendency among well meaning and capable practitioners—to under-estimate the value of services rendered almost daily in their offices. Why such a condition should be so general and why it has remained so, as long as it has, can only be explained in one way.

Within this room are many who can easily remember when the operations performed by the dentists were limited by a very narrow field and in many instances were crude at the best.

By leaps and bounds—with almost miraculous progress, in less than a generation, scientific research, prolific of the most gratifying results, has placed our profession in the foremost ranks among the specialists of the age, who seek to relieve suffering humanity and restore to usefulness impaired functions.

To attain this result almost every field of human endeavor has been invaded. Medical and surgical research, the applied arts and sciences, have been drawn upon more lavishly than casual observers realize, and frequently we see this attained knowledge either scientifically or empirically, yet skillfully applied at less than mechanic's wages.

In the haste of the hour, fully occupied with new theories and methods, but little thought has been given to business affairs. This should not be. To engage continuously and successfully in any vocation, one must be well fed, comfortably housed and clothed, assured of a competency in old age, and possessed of genuine self respect. Doubt and uncertainty touching any of these conditions will prove a barrier to that full consecration of one's life work so necessary to produce the best result.

The field of scientific research is broader today than ever. There is a never ending call for volunteers in this strenuous age and many men will give the full measure of their strength throughout long years of devotion to their chosen profession with scarcely a thought as to their financial reward. All honor to them. Without their efforts we should retrograde and in time cease to command the respect of the world, but much as we may honor and respect them—their efforts crowned with the greatest triumphs do not relieve us of that other responsibility—the temporal welfare of the great mass of practitioners.

If we were wandering nomads, drifting from place to place—living isolated lives, the strong overpowering the weak, hope for betterment of general conditions of one and all would be abandoned—but such is not the case.

Thoroughly organized into working societies consisting of a large per cent of the whole profession—in neighborly touch with non-affiliating practitioners one and all of whom are injured or blessed by the same conditions that either harm or benefit us, it is in the range of possibilities and highly probable that a campaign of education touching all vital points could be made to reach practically the whole profession.

Properly conducted such an effort would commend itself to all right thinking men. With a distinct regard for the welfare of the public—absolutely devoid of any intention to impose upon any body—the sole and only purpose would be to promote an understanding among capable and efficient operators of the true value to the public of the services rendered. With this clear knowledge—the composite opinion of the whole profession, the public would agree.

Do you imagine the task too great? Does it seem impossible?

Reflect a moment, and see how many obstacles have been overcome in the past. Has any improved method possessed of genuine merit been rejected? Short cuts to desired results have always been eagerly appreciated. If it can be clearly shown to intelligent men the folly of acquiring knowledge and skill and bartering it away for a song, it will be an easy matter to induce them to join their neighbors in placing a just estimate upon the value of the services they render. This would be conservation of our resources *per se.*

Those who have not inquired deeply into the business side of the average dental practice may if they care so to do, ascertain that in many instances the fee collected for services rendered is either but a small amount above the actual cost of materials used, or practically no fee at all. This should not be and it is the duty of the profession as a whole to proceed to an intelligent, just and equitable understanding of results, fair to all concerned.

That a small per cent of practitioners are enabled to collect very high fees is no evidence of an over prosperous profession. When we look for the wealth of a nation we do not stop after finding five hundred or a thousand millionaires—but examine closely int the financial conditions of all the people. So it is with the dental profession.

A dental journal widely circulated in a recent issue—after careful investigation places the income of the average dentists at $2,600 per annum—figuring the cost of maintaining office and supplies at $1,200, living expenses at $1,200, leaving a net profit of $200 per year. If this be true one of two things we must admit, we are either very ordinary mechanics or poorly paid for professional services.

Every man in a greater or less degree is a creature of environment. No man can prevent the existing conditions, and our only hope for reform is in concerted action. When we recount the wonderful progress made in the last twenty-five years through the agencies that have labored to advance scientific research, consider how thoroughly organized the rank and file of the profession, and reflect how general the agitation relative to the business side of dentistry, is it not fair to presume, that once these potential forces are directed toward the curtailment of the growth of all baneful elements, that we may reasonably expect a great lessening of the evil? No man can escape this responsibility. We owe it to the profession, to our patients, and above all to our families.

The dental societies must either directly or indirectly invade every office—the progenitor of all that is new, helpful and useful to properly disposed men—the adviser and help-mate in every thing that may aid in securing to each operator proper compensation for his year's work.

An evolution that promises the eradication of these hindrances to the financial welfare of the profession will give courage to many a timid operator who views with disappointment the grand total of his year's earnings.

Without any trumpet notes—in a quiet yet forceful manner, under my observation, a medical fee bill was raised from twenty-five to fifty and in a few instances one hundred per cent. Where the advance was justified no objection was heard from the public—but instead, a general concurrence in the opinion of the profession that the previous rate had been too low.

Suppose a $2,500 practice could be increased 25 per cent above present rates, $600 saved anunally and carefully invested, in ten years would work a wonderful change in our bank accounts.

Early efforts at reform were undertaken by a mere handful of pioneers. Today we can marshal an army of splendidly equipped practitioners ready for the fray. If it is possible to enlist them in the service for the advancement of scientific knowledge, it necessarily follows that they may be re-enlisted in an effort to promote the financial welfare of one and all. Who doubts that our financial condition will not be improved as the result of a healthful and proper consideration of the character of the services we render and the compensation received, compared with the fees obtained for like services in other professions.

Much might be said of the professional outlook generally and of that which will aid most in upbuilding the volume of practice in the future.

Free clinics for patients unable to pay for the services of regular practitioners, and general examinations of the school children's teeth—both of which are expensive, considering the time and money required—would greatly benefit patients so served and at the same time help to arouse the public as to the extent of dental caries and the need of battling with diseased conditions so generally existing in the oral cavities. If the public could be made to realize the danger of infection through unhealthy mouths a long step forward would be taken.

In addition to free clinics, the expenses of which are partly borne by the municipality, much good might be derived from a half day, given once or twice a month, for dependent patients, by every practitioner. Six or twelve days per year given with a free hand and a generous heart would prove a boon to many needy children and make better men of every one of us.

When you call to mind that there are 1,507,013 people in the state of Illinois, between the ages of six and twenty-one years—746,745 of whom live in Cook County you will be impressed with the magnitude of the task, should a general examination of the teeth of the school children be undertaken. Stupendous as it may seem in a few localities the work has been accomplished and with perfected methods simplyfying the details, the ground will eventually be covered in all well organized dental districts.

As a source of information, to parents showing the condition of their childrens' teeth, it will be invaluable. As an educator and practice builder it will prove most helpful.

If the public is slow to appreciate the great need of guarding the health of the subjects of the nation—our responsibility is but increased—for we are in possession of absolute knowledge and can not plead ignorance. With knowledge comes responsibility, and the supreme test of genuine manhood is the use we make of our ability to help the needy.

Laying aside for the moment the general financial aspect as applied to the whole profession and turning back to that field of scientific endeavor that has so long claimed many devotees, we hail with delight every new and progressive thought—accept with courage every responsibility and pledge ourselves with renewed devotion to the great work of ministering to suffering humanity. No task is too great; no hardship but may be cheerfully endured; no goal beyond the hope and ambition of some untiring student. Having outgrown the narrow confines of the once privately conducted office—we welcome every advanced thinker and accord to him that meed of praise so justly deserved. Inbued with a true professional spirit we view with each other in an effort to contribute to the world some new and useful thought. Liberated from burdensome financial cares, unhindered in its onward march to higher attainments, there is no more inviting occupation to those willing to work, than the practice of dentistry.

Chosen as life's work, honestly—intelligently and conscientiously pursued, the record of our lives may prove a benediction to all concerned.

He who adopts it as the stepping stone to improper, unjust and dishonest proceedure, will find the history of his life lost in obscurity.

Let us ask what can be done to improve our present conditions—to aid those who take up the work when this generation has rendered its final accounting. The life of the individual is but a short span, the personal record of most of us will soon be obliterated from the memories of our confreres, but the life of a great and useful profession is linked to the ages and is measured only by infinity.

PRESIDENT'S ADDRESS.*

BY DR. M. J. QUINTERO, LYONS, FRANCE.

Gentlemen;

I should have liked to institute a new departure for the opening of our society this year, one which would have been gratifying to you all and supremely so to myself, namely; the elimination of the president's address; but we are a well ordered and conservative body, and no one individual may venture to revise the constitution or overturn established customs to suit his personal needs; therefore, painful as it may be to you and to me, we must conform to the traditions of the society and endure the operation with what courage we may. For my part, I promise to be brief, with a leaning to the side of mercy.

It affords me great pleasure to extend a cordial greeting to so many members and visiting friends who have convened from near and from afar in this beautiful city for our thirty-seventh annual meeting. I trust none will go away disappointed. It is an arduous task for the executive committee to prepare a program for a meeting like this, and to secure able men for papers and clinics which shall both interest and instruct us; nor has the local committee a slight proposition to solve in preparing for our reception and entertainment, and I know I voice the sentiment of the entire society whe I assure all of our committees of our thorough appreciation of their strenuous efforts to give us the very best to be obtained for this meeting.

Our annual meetings are timekeepers of our progress. They recall the world's advancement in our art. They should stimulate the energy and research of every member and quicken his genius. They should open storehouses of information to the earnest seeker, and every meeting, great or small, should help to some onward step. Comparison of ideas is always educational, and as such instructs the brain and hand of man. We can realize this individually by the earnestness with which we listen to discuss, compare and assimilate those ideas which are brought to us here from every part of Europe.

Our profession in Europe seems to have taken its rightful place in point of appreciation and respect: We have no cause for humiliation for the part it has performed in the progress of the age. The American dental surgeon seems to express to the foreign mind the *ne plus ultra* of science and skill. It should not be difficult, with conscientious effort and unrelaxed study of new methods to maintain this pre-eminence.

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*Read before the American Dental Society of Europe, March, 1910.

I wish to emphasize *unrelaxed study.* Somebody has defined the Classics as "books which everybody eulogizes and nobody reads." I am willing we should all forget the Classics, though some of their authors have let loose large thoughts upon the world; but we have a set of periodicals which we may all eulogize, and which we all should read and sustain. You, men, here before me, who hold the pen of the ready writer, and there are many among you who do, should never be weary in giving us articles in our journals on every new phase and treatment which come into your experience. You would thus enhance their interest and value to us all. The broad-minded willingness of members to impart knowledge to each other is of great practical benefit to the profession. There are also many dental works constantly appearing which are most profitable for our serious study in order to keep up in line. The call of the profession for good men was never more insistent than it is today, and the good man, having made an exhaustive study of his profession before entering upon its practice, should always continue to keep in touch with all that is new both in theory and method.

The trend of the times is towards a higher education for the dental student, but the mold of this is difficult to determine. The attempt of one of the best universities to introduce a four years' course was unfortunately unsuccessful and, perhaps from the fact that the number of students matriculating diminished rapidly, and also that other schools refused to follow their initiative, the effort was abandoned. Were a diploma from a high school or college an unconditional entrance requirement, a long stride would thereby be made towards the primal fitness of men for the profession; yet many would doubtless be debarred from matriculating, and the "untutored mind" and the get-through-quick would naturally be eliminated. Much has been said of late on the advisability, and indeed the necessity, of not only a partial but an entire medical training for the dental student. You have probably all seen an article in the April *Cosmos* of 1909 entitled "Sense and Nonsense in American

Dental Schools," in which the writer makes a rather violent onslaught on the curriculi of the various schools and colleges of the present day, saying that "the profession for the last twenty-five years has been drifting, drifting because dental school teachers have made mechanics their principal goal. "This is a severe arraignment, and one which seems unjustifiable in view of the able men who have been graduated from those schools within the last quarter of a century. The panacea for this distressing condition of things would seem to be, in the writer's opinion, a thorough medical training in addition to the regular odontological course, and in fact, the inference is that he would have it precede the dental studies; and he distinctly says that "a poorly educated practitioner with an M. D. degree always stands better in a community, both socially and professionally, than the best of educated dentists with the D. D. S. degree alone."

I have no desire to weary you with a discussion or criticism of these views, I only wish to consider their practical outcome. We all know that to be a skillful dentist one should begin his dental studies as soon as he has finished his high school or college course, say at eighteen or twenty years of age. The suppleness of youth is necessary to the fingers and hand for mechanical manipulations, and this is something that cannot be gained in the same degree at twenty five or later when the medical course is completed. It is a foregone conclusion then, that the dental studies should come first. Granting that the course only extends over three years, he will be twenty-two or three when he will have acquired his dental degree and be able to enter upon his medical studies, which will consume four years more—seven years' training in all. There is no doubt but that this would make the ideal practitioner, but how many men would be willing or able to spend so much time and money in preparing for the dental profession? I firmly believe that in the best dental schools, even with a three years' course, the earnest dental student acquires a knowledge of anatomy, physiology, biologic chemistry, bacteriology and all their correlated branches, sufficient for thorough and scientific work, and with his college training as a basis, with a close application of the same to his varied practice, with constant personal research and continued study, the Doctor of Dental Surgery will find himself excellently well equipped mentally and scientifically for his specialty in all of its ramifications—yea, and even better than the ordinary medical man at the end of his course. His position both professionally and socially in his community will depend upon his own seriousness and superiority in his work, and his own personality.

I cannot close without referring to the satisfaction it will give us all, as Americans, to behold in this city the statue of one of the greatest benefactors of humanity, a copatriot and a fellow practitioner whose genius sought and found the means of alleviating untold suffering. We are proud to do him honor here on earth, and we believe he will have his reward above also; for, when the great account of humanity shall be made up, in the bright list of those who have best adorned and served it shall be found the name of OUR HORACE WELLS.

HONEST DENTISTRY.*

BY DR. W. F. KELSEY, MARSEILLES, FRANCE.

If called upon to define honest dentistry, every practitioner would be inclined to interpret it from his own special standpoint, one would maintain that the very best work with the highest possible fees constitutes honest dentistry; another that giving a man his moneys' worth is a good basis for fair dealing; a third, that a patient is entitled to one's utmost skill and that the fees should be tempered to the shorn lamb, with a mental reservation that a fine fleece will bear very close shearing. A better definition is, such treatment as the operator would desire were he to change places with the patient. Were this standard generally adopted one would never go far astray.

In France, until a very recent period, the moral standard of our profession was at such a low ebb that the very name of dentist was a slur, often cast at others than those who followed our calling for a livelihood; I could cite one of this class, now deceased, who was notorious for charging for gold fillings though he could no more make one than could a Pawnee Indian box the compass. Gilded silver springs were transmuted into the finest gold by his auriferous tongue, amalgam became platina, and cement, porcelain, but the palm of professional astuteness is due to a dentist who made three entire sets for an English traveler, the third being without teeth, to rest the mouth at night. I had this statement from the victim's own lips. Such instances of unscrupulousness are fortunately becoming more and more rare and will soon, let us hope, exist only as legends of the past. It is no assumption to state, that to American dentists is due in great part the rapid elevation of the moral as well as the social status of our profession throughout Europe. In this connection it will not be invidious to mention the names of some of the pioners who have helped to work out this happy result. Conspicuous among these are Drs. Evans, Taft, Elliot, Abbot, Van Marter, Kingsley, Stevens and Field, not forgetting the venerable member of our Society, Dr. Crane, whose fiftieth anniversary of dental practice was recently celebrated in this city. But do we all live up to the standard of doing as we would be done by? Are we never influenced in giving our advice by the looming phantom of rent day, or a long unpaid account at the dental depot? It would be humiliating to admit such a such a suspicion and we are certainly no more open to to it than the members of any other profession, but a large fee acts upon the budget like oil upon a heated bearing and the clogging of the machine naturally suggests the most convenient remedy. We are all proud of the high standing of our society, the probity and self-sacrificing spirit of the vast majority of its members, the well merited respect of the public accords us, collectively and indivdually, and my only object in introducing this subject is to impress upon the members the importance of maintaining this high standard, and if possible of still further enhancing the enviable reputation we have already acquired. Few professions offer greater temptations than ours to profit by the weakness of mankind; there is no lack of victims for the unscrupulous, but I digress. Let us take up in their order the various conceptions of what constitutes a just rule of conduct in dealing with the public.

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*Read before the American Dental Society of Europe, at Paris, March, 1910.

Exceptions can scarcely be taken to the first definition, of the best work and highest fees, provided the patient has a previous intimation of the probable expense to be incurred. Giving a patient his moneys' worth cannot be characterized as unfair dealing, yet such a criterion can scarcely be considered worthy of a practitioner whose aim is to maintain the highest possible standard of professional integrity. The system of a sliding scale of fees will probably meet with the approbation of many of our most reputable members despite the temptation it offers to run the notes of the scale into an unconscionable number of octaves. The great strides made by our profession in the art of correcting dental deformities, in the restoration of crippled teeth and in the replacement of the missing links in the chain of dental organs, during the past quarter of a century gives a correspondingly greater latitude in determining the treatment applicable to each special case, although the physical condition or the financial status of the patient may materially influence the decision with regard to the course to be pursued. One is frequently put to the crucial test of professional integrity by a patient with strong preconcieved opinions, who, instead of asking advice unhesitatingly expresses his desire to have bridge work, porcelain inlays, or gold crowns, even when an examination of the mouth may show that the conditions are entirely unfavorable for such operations. The lack of proper abutments for a bridge, the uselessness of crowning teeth that could be better preserved by other means, or the impracticability of porcelain inlays might in each case contra-indicate the proposed mode of procedure, but the patients' prejudices, based upon the experience of numerous acquaintances, are so deep seated that an attempt to dissuade him from having work that would neither fulfill the requirements of the special case, nor give permanent satisfaction to the patient might shake his confidence in the operator's good judgment.

What is one to do under such circumstances. Perforating the mandible at its two extremities in order to plant abutments for a bridge, which was to extend to the bicuspids on either side, as was proposed to a patient I once treated, by one of the most audacious as well as skillful operators in America, is altogether too radical treatment for general adoption. The patient, if treated as desired would likely leave the office with a high appreciation of the operator's skill and return in a few weeks perplexed with regard to the unsatisfactory result. Even then a few unintelligible remarks about metabolism, odontoblasts, pyogenic influences, or a skillfully turned Latin quotation would reassure him and heighten his confidence in the scientific attainments of the practitioner. But will such a course pay in the long run?

Honesty is the best policy. The public eventually learns to distinguish between those who take the patients' interests to heart and those who always encourage them in their penchant for complicated operations of doubtful utility. Some men are so imbued with the importance of their mission that a simple operation does not appeal to their understanding, whilst on the other hand, they are ever ready and willing to try a scientific experiment, however uncertain be its ultimate results.

How many of us would consent to have a dovetail cut from either side of his mandible to correct a most pronounced case of prognathism, a retreating incisor brought forward by first sectioning the alveolus with a buzz saw, or to have a twist drill driven into his maxillary in order to facilitate the resection and cure of the various roots of a diseased molar, to say nothing of less heroic operations, such as having two sound molars ground away to make anchorages for a third missing one, or his bicuspids surrounded by metallic girdles to support a bridge carrying all the missing grinders upon the same side? I wot not many. Yet these are typical operations, recommended by some of the best authors in our profession. Those who are sufficiently hardy to undertake such risks are doubtless true men of progress, but it is equally true that where no real necessity for intervention exists, the chances of success should be well weighed before advising an operation that might jeopardize the life of the patient or of which the permanent utility is problematical.

EMERGENCIES.*

BY DR. GEO. O. WEBSTER, BERLIN.

The dentist does not share with the general surgeon the daily, even hourly, possibility of meeting cases where the issue of life and death are dependent upon his coolness, knowledge and judgment, but, and this is especially true since the almost universal use of the various preparations of cocain, there does at all times exist in the borderland between dentistry and medicine the possibility of more or less alarming crises where the dentist must be equally well prepared and must justly be held responsible for any lack of knowledge of the conditions or the remedies demanded.

In the fact that these emergencies are rather unusual in daily practice lies the danger that we may not comprehend the necessity of being fully prepared to meet them. They usually receive but meagre attention in the college curriculum and a review of dental literature for the past few years reveals but little on the subject.

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*Read before the American Dental Society of Europe, March, 1910.

I can scarcely hope to bring to your attention anything new in the line of treatment, but relying upon the statement of James Russell Lowell that "Originality consists quite as much in the power of using to purpose what it finds ready to hand as in that of producing what is absolutely new," I shall assume that the subject is important enough to be worthy of your attention for a brief resumé of recognized methods and remedies.

In doing so I shall not take the time to go into a lengthy description of symptoms with which you must be fairly well familiar, not into the specific and peculiar effects of the remedies employed, for these have already been determined and we are therefore warranted in taking the dictum of those to whom these cases are much more familiar than ourselves.

There are, however, one or two points which I should like to be able to bring forcibly home to you. The first, and I am inclined to believe the most important, is the necessity of exhibiting calm and deliberate judgment in these imminent emergencies where under the fear and excitement of the moment nervousness and indecision are so much more liable to prevail.

Overconfidence might be equally disastrous, but we refer to that degree of self-reliance and confidence which can only come from both "knowing what you know and knowing that you do not know what you do not know," and this state of mind cannot exist unless we have both the necessary knowledge and are fully prepared to meet with promptness and decision those emergencies to which every dental practice is liable. As one important means to this end I would suggest the employment of a special case for keeping together and always having at hand the necessary remedies and appliances.

It is needless, I trust, to say that this case should never be called upon to supply the demands of the daily practice, but must be kept carefully filled and ready for instant use.

Personally, I prefer the case to a drawer or compartment in the operating cabinet. It is less liable to be interfered with by the office assistant, and it is available when visiting patients at their homes, when their vitality is often low and they are in consequence especially liable to systemic disturbances.

The case should contain all the needed remedies including distilled water, all plainly labelled and dosage noted. The hypodermic syringe should be of the all-metallic kind lest the plunger be found dried and unserviceable when suddenly needed. The contents will doubtless vary somewhat according to individual needs. As I shall take mine with me on extended journeys I have included a list of poison antidotes and a jar of antiphlogistine, which I have found to cover a large range of the smaller injuries to which the genus "Homo" is liable. In case the dentist is in the habit of administering general anesthetics a pair of tongue forceps should certainly be included.

Some years ago after the administration of nitrous oxid gas to a young lady for the extraction of several teeth the patient was making good recovery when suddenly marked indications of asphyxia became apparent. Respiration stopped and the face became rapidly almost black. After reassuring myself that there was no tightness of the clothing, examination of the mouth revealed the fact that owing to an abnormally long fraenum, the tongue had dropped back into the fauces which it completely blocked. Having no tongue forceps at hand I was obliged to resort to rather vigorous methods which are only to be recommended because of their effectiveness, viz: taking the patient from the chair and allowing the body to drop forward over my left arm, with my right I delivered a sharp blow with the fist between the shoulder blades. This quickly accomplished the desired result. The tongue was thrown forcibly forward and respiration was resumed.

To add, if possible, emphasis to what was suggested earlier in the paper I would say that during this operation my assistant, a man of more than ordinary resourcefulness, stood by looking like a marble statue and was exactly as useful to me in the handling of the patient.

SYNCOPE.—Patient should be laid prone. Clothing loosened if necessary. Give plenty of fresh air and bathe face in cold water. Volatile salts may be inhaled. If recovery is slow, brandy or aromatic spirits of ammonia, in fl. dr. ss-ij doses, may be given internally as soon as deglutition is possible. There is little danger in simple fainting, but to distinguish between syncope and some phases of heart failure is not so easy, and it is fortunate for us that the treatment for both is along the same lines. Although in no way a sure criterion, the pulse is here our most valuable guide, for while in fainting it may be markedly lowered in force, it is usually fairly regular, but in heart failure whether from the toxic effects of cocain or from other altered function, it is usually intermittant, erratic and often almost entirely disappears.

In view of the almost universal use of cocain and the fact that owing to idiosyncrasies even its use topically sometimes brings about alarming symptoms, we should be especially prepared to meet conditions of

HEART FAILURE.—As the prevailing symptom of both syncope and heart failure is brain anemia, the position and preliminary treatment should be the same. In addition remedies more or less directly affecting the heart are ordinarily used as amyl nitrite, strychnin, nitroglycerin, digitalis, ether and camphor.

Nitrite of amyl is administered by inhalation in 3 to 5 minim doses. It is a forcible, quick heart stimulant, although but transient in its effect, and as soon as the primary effect of the drug has been realized, it should be immediately followed by the use of a general stimulant. I am inclined to the belief that strychnin 1/30 grain or nitroglycerin 1/100 grain, both administered hypodermically, are rather the favorite remedies in America, while where I am practicing the following prescription is more generally employed:

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Ether,	1.0
Camphor	2.0
Ol. Oliv.	8.0

in which the olive oil is only to act as a solvent for the camphor. This is administered hypodermically in 10 minim doses. If fairly immediate results are not obtained from this, the dose may be repeated after a few moments.

Nitroglycerin is similar in its action to the nitrite of amyl, producing vascular dilitation and consequent lowered blood pressure. It is not quite so prompt in its action as the nitrite of amyl, but is rather more enduring in its effect.

Digitalis is also a vascular stimulant and seems to retard pulsation, at the same time increasing the force of the heart beat. It is exhibited hypodermically in 1/50 grain doses and is apparently especially demanded in case of intermittent heart action.

Failing everything else, resort must be had to artificial respiration, about twenty beats to the minute.

Swallowing of Foreign Bodies.—These cases as a rule do not come within the province of the dentist, but belong to the general surgeon. If the object swallowed is not larger than a tooth or crown and has no sharp points to lacerate the walls of the digestive tract, it will probably cause no complication after having reached the stomach. The patient should have all the assurance you are justified in giving and allowed for some hours a diet consisting entirely of foods rich in starch, like bread, or better still, mashed potatoes. This assists in forming a bolus about the object, which permits of an easy passage through the intestines. Should the case be more serious inquire the name of the family physician and put yourself at once in communication with him.

Dislocation of the Inferior Maxilla.—This is quite possible in an everyday practice, and while very simple and usually easily remedied, it is often extremely terrifying to the patient who is apt to associate the condition with tetanus. It may occur from inherent weakness of the muscles where they are kept on extreme tension for prolonged filling operations or in the taking of impressions. It is simple displacement of the condyloid process downward and forward until, in complete dislocation, it rests in front of the articular eminence.

In case the dislocation is bilateral it is advisable to reduce each side separately and this is usually readily accomplished by means of exerting strong force on the posterior teeth of the mandible, carrying it downward far enough to allow the process to pass the articular eminence and then backward until it drops to place.

If there is any "Doubting Thomas" who questions the amount of force usually attributed to the muscles of mastication, let him attempt this operation without amply protecting his hands with a towel or napkin, but unless he has more thumbs than he needs, their use is earnestly recommended as the mandible drops into place with no inconsiderable force. In case the muscles are unusually tense, a cork or piece of wood may be used as a fulcrum by placing it between the molars on the affected side and then directing the force towards raising the anterior part of the maxilla. In extreme cases the use of a general anesthetic is required to induce relaxation of the muscles. After reduction a bandage should be worn for some hours.

While hardly in keeping with the rest of the paper, I feel justified in taking the opportunity of bringing to your attention the too little known ointment of Metschnikoff and Roux for the neutralization of the syphilitic virus. The attention of the profession has to some extent been called to this ointment by Hofrat Dr. N. S. Jenkins. In a busy practice it is more than possible for the syphilitic conditions to go unrecognized until after the discovery that an abraded finger might have been a possible source of infection.

The ointment is composed of

Calomel,	33.
Lanolin,	67.
Vaselin,	10.

It has been proven by experiment and in clinical experience that this ointment will, if thoroughly rubbed into the point of infection, effectually counteract the virus. A jar of this ointment or something equally effective should be in the office of every practicing dentist. I would not for a moment minimize the advisability of calling to our assistance in all cases of systemic disturbance, the aid of the general surgeon, but many crises arise in the dental office where remedial action to be effective must be prompt, and it is not always possible to secure the services of a physician as quickly as they are needed.

The credit of the profession demands that we should be thoroughly conversant with the usual remedies, with the use of the hypodermic needle other than for simple submucous work, with the various phases of the pulse and with the proper methods of artificial respiration, and be prepared at all times to give first, which is most often in these cases effectual, aid so that whether before the tribunal of legal justice or before that of our own conscience we may stand acquitted of having failed in any respect in our duty to our patients.

REPORT OF THE COMMITTEE ON DENTAL SCIENCE AND LITERATURE.*

BY C. N. JOHNSON, M. A., L. D. S., D. D. S., CHICAGO.

A study of the periodical dental literature of the past year will demonstrate the fact that nothing revolutionary or epoch-making in the science of dentistry has been developed in that period. This does not imply that a steady advance has not been made in dental science, nor that the profession is not more proficient than it was a year ago. There is an acuteness of thought in several important directions as manifest in our periodical literature which is very encouraging and which we believe will ultimately redound to the credit of the profession and the benefit of the people we serve. The year has therefore not been a profitless one.

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*Read before the Illinois State Dental Society, May, 1910.

To give an idea of the varied character of the subject-matter which has been presented to the profession through the medium of our journals, it is only necessary to mention the titles of the articles appearing for any one month. The following is a list of papers published in five of our periodicals for a single month taken at random:

"The Interproximal Space: Its Importance and Preservation," "Root Canals," "The All-Porcelain Jacket Crown," "Oral Surgery," "A Method of Making Gold Fillings Without the Use of Pits, Parallel Grooves, or Undercuts for Retention," "A Contribution to the Prophylactic Treatment of Caries," "Some Needs of the Hour," "Prophylaxis in Dentistry," "Porcelain Inlays: Their Indications and Technique," "Some Mistakes in Operative Dentistry," "Gold Fillings Versus Gold Inlays," "Cleft Palates and Obturators," "An Exceptional Case of Facial Plastics," "Are We Retrograding in Crown and Bridge Attachments?" "Some Practical Points in Operative and Prosthetic Dentistry," "The Contributions of Pioneer Dentists to Science, Art, Literature and Music," "A Retrospect of the Congresses at Berlin and Budapest," "The Application of the Casting Process to Crown and Bridgework," "Pin-Locked Cast Gold Inlays in Abutment Teeth," "An Unusual Condition," "The Sphere of the Dentist in the Field of Orthodontia," "Drainage in Antrum Cases," "The Care of the Teeth," "President's Address," "The Financial Side of a Profession," "A Talk on Tartar Solvent," "Unity," "The Unassociated Dentist," "For the Advancement of Dentistry," "The Making of an Advertising Dentist," "What Is a Competence, and How Shall a Dentist Amass It?" "The Financial History of a Famous Dentist," "One Method of Determining Costs," "Do You Make as Much Money as Your Plumber?" "Merits and Shortcomings of Silicate Cement," "Silicious Cement," "Silicate Cements," "It Is Your Move Next," "Early Dentistry in America," "Some Principles of Retention in Orthodontia," "President's Address," "Shades and Shadows," "Disease of the Gums and Pericemental Membrane," "Dentistry in Eastern Kentucky," "Cooperation," "To Anneal Broaches," "Some Points in the Treatment of

Deciduous Teeth," "Practical Hint," "Cement as a Retainer for Metal Fillings," Practical Suggestions."

These articles all appeared in the month of November, 1909, and they show a great variety of subjects, which is merely indicative of the character of the matter appearing throughout the year.

The charge has frequently been made that dentists are not extensive readers or writers, and it may be true that the majority of them do not read or write as much as they should, but here we have fifty articles in a single month in five of our journals, to say nothing of the many other dental magazines throughout the world. This multiplied by twelve would make a very creditable showing for the year so far at least as the amount of our periodical literary output is concerned. Much of this, of course, might be improved as to quality, and we believe it is being improved, so that while we do not wish to foster the idea that the profession should rest upon its oars in a complacent self-satisfaction regarding its literary status, yet our attitude should be one of hope and encouragement rather than one of wholesale depreciation.

Among the important contributions during the year may be mentioned the articles of Alfred Gysi, D. D. S. of Zurich, Switzerland, entitled "The Problem of Articulation," running in the *Dental Cosmos* from January to April, 1910; and another series by Dr. George Wood Clapp on "The Mechanical Side of Anatomical Articulation," beginning in the *Dental Digest* for December, 1909, and continuing to the present. These articles exhibit a detailed study of the subject which will well repay a careful reading by those interested in this question.

The behavior of metals in contact with teeth in the mouth has been given considerable attention by two writers. Dr. Clarence Jones Grieves has read two papers before the American Society of Orthodontists, published in *Items of Interest,* May, 1909 and February, 1910, on "Base Metal Versus Noble Metal Appliances in Orthodontia." Dr. Grieves has made a very exhaustive study of this question and as a result condemns strongly the use of base metals for orthodontia appliances, concluding with these words "The noble metals only are fit for appliances in the human mouth."

In the April, 1910 *Dental Cosmos* is an article by Dr. I. N. Broomell on "The Adventitious Effect of Large Masses of Gold in Contact with Tooth Tissues." Dr. Broomell refers particularly to the application of gold crowns to teeth with living pulps, and takes the position that even where there has been apparently no injury to the pulp, the probability is that damage is done in any one or all of several ways. He says near the beginning of his paper: "As a result of the microscopic study of a number of cases it is proposed to show that almost invariably the pulp tissues and as well the enamel, dentin and alveolo-dental membrane are all more or less affected in various ways by such unnatural surroundings. Among the morbid effects produced are hyperemia of the pulp, dry gangrene of the pulp, calcification of the pulp tissue, sclerosis of the blood vessels of the pulp, atrophy of the pulp, pulp nodules, secondary dentin, expansion of the dentinal tubules with corresponding bulging of the dentinal fibers, pathologic pigmentation of the enamel and dentin, non-carious destruction of the enamel, as well as destruction by caries and perhaps a molecular change in this tissue."

His argument is supported by microscopical slides showing degenerative processes in pulp and other tissue, and his conclusion is that the foregoing conditions are less likely to occur when gutta percha is used instead of cement for attaching the crown.

These articles by Drs. Grieves and Broomell will well repay study.

Another series of articles of unusual interest at this time is the one in *Items of Interest* beginning in August, 1909, and continuing to the present, on "Application of the Casting Process to Crown and Bridgework," by Dr. Hart J. Goslee. These articles are well written and admirably illustrated, and contain the most recent advances in this important work.

The continuation in the *Dental Digest* of the articles on "How to Make Gold Fillings," by Dr. J. V. Conzett has carried the series at intervals through the year, and it makes entertaining reading even in this age of the high water mark of the inlay.

It is manifestly impossible to refer to all of the excellent articles which have appeared during the year, but I have pleasure in calling attention to one in particular which illustrates a certain trend of thought well worthy of our closest attention. In the March, 1910, number of the *British Dental Journal,* Dr. J. Sim Wallace of London, England, publishes an article entitled "Remarks on the Hygienic and the Artificial Methods of Preventing Dental Caries." Dr. Wallace has for some time advocated the establishment of normal function in mastication as the best means of checking the ravages of dental caries and has done great good in directing attention to this important matter. He believes that the chief factor in susceptibility and immunity is what he terms the "dietetic habits" of the individual, and naturally he favors such dietaries as demand considerable mastication before being swallowed. He argues that the reliance upon "artificial" methods of keeping the teeth clean—such as the use of the tooth brush, etc.—rather than upon the natural method—thorough mastication of proper food materials—is accountable for much of the caries found in the human family, and he outlines a system of diet which he considers well calculated to tend toward immunity. Whether or not the profession may agree with Dr. Wallace in all the details of his argument he must at least be cordially commended for the fundamental contention he makes—that the essential factor in dental caries is a question of environment instead of fluctuations in the character of the tooth tissue itself. Dr. Wallace's articles will well repay a careful study by the profession.

The inlay filling while receiving considerable attention during the year has not been exploited so immoderately as in the past, and it would appear to be settling itself into its legitimate sphere. One of the most noteworthy articles on this subject printed in our journals was the one in the September, 1909, number of the DENTAL REVIEW by our own worthy secretary, Dr. J. F. F. Waltz. In his "Report of the Post-Graduate Committee upon Gold and Porcelain Inlays," he gives a masterly summing up of the situation so far as it concerns inlay work up to the present time.

In the February, 1910, DENTAL REVIEW Dr. C. R. Baker publishes an article entitled: "Some Experiments to Determine the Physical Properties of Cast Gold." This article has created considerable comment in the profession on account of some of the findings. It has always been supposed that the specific gravity of solid gold was about 19.16, but when Dr. Baker submitted his cast cubes to the Physics Department of the State University of Iowa, they reported back such specific gravities as 21.154, 20.464, and 20.365. Whether an error has crept into the findings of the scientists of the University, or whether the casting process imparts to gold a hitherto unknown characteristic remains to be seen. One of the chief conclusions that Dr. Baker came to was that castings made in cold molds were much more perfect than those made in hot molds, and also that in regard to the entire process of casting there is much yet to be learned.

Dr. A. D. Kyner contributes an article to the December, 1909, number of the DENTAL REVIEW on "Nervocidin as an Adjunct in the Treatment of Degenerative Conditions of Vital Pulps," in which attention is called to a simple, and what seems a very effective method of managing many of those cases of exposed pulps, particularly in the teeth of children. Nervocidin has not up to this time been extensively noticed in our literature, but if it has the virtues attributed to it by Dr. Kyner it will soon become more widely known. He again refers to it in a paper published in the May, 1909, issue of the DENTAL REVIEW under the title "Therapeutics applied in the Treatment of Deciduous Teeth." Dr. Kyner writes in a very convincing and common sense manner, and his articles therefore appeal strongly to the reader.

In studying the trend of thought as expressed in our journals for the past year three things stand out as commanding particular attention. These are the business side of dentistry, the care of school children's teeth, and dental education of the public.

Of the first of these the *Dental Digest* has been the chief exponent, and has published during the year numerous articles along this line, all aiming to develop among dentists better methods of conducting the business affairs of their practice. That there was a necessity for agitation of this subject no one can doubt who has studied the pitiable financial condition of many of our older men, and so long as the agitation does not drift into the commercializing of our professional ideals it will result in good. Every man owes it to himself and to those dependent upon him to so conduct his affairs that his declining years shall not degenerate into penury and want, but no professional man has the right to make money-getting his chief aim to the detriment of his professional obligations to the community in which he lives. We must educate the members of the profession to be better business men with a higher sense of their responsibility in this important particular, but we must not allow this to blunt in any degree the finer essence of moral obligation which demands that a professional man shall have a more exalted ideal of life than anything connected with mere barter or trade. We should be good business men, but none the less we should be honorable professional men.

The care of school children's teeth is being agitated now as never before in the history of the world, and in some centers the agitation has culminated in the practical carrying out of the idea in a most encouraging manner. In Rochester, N. Y., a free dental dispensary has been established, and is now under successful operation. In Cleveland, Ohio, dental clinics have been established in several of the public school buildings, and similar movements are on foot in other cities. Statistics go to prove that about 97 per cent of school children have defective teeth, and it is surely time that something was done to care for those whose parents are not in a financial position to give them that care.

Fitting into this movement and contributary to it is the education of the public on the importance of the teeth and the necessity for their proper care. That excellent journal the *Dental Summary* is vigorously carrying on a propaganda of this character, and the subject seems to be in the air at this time. Women's clubs are taking it up and inviting lecturers from among the profession to appear before them and enlighten them on this important subject. Popular magazines and newspapers are giving much space to it, and there seems to be a most encouraging awakening in various directions. In the *Chicago Tribune* of Sunday, May 8, there is a special despatch from New York which says:

"To call public attention to the necessity for efficient dental inspection in schools a mouth hygiene exhibition will open in assembly hall of the Metropolitan Life building next Thursday evening and continue for a week.

The exhibition is made up of contributions, chiefly in the form of photographs, plaster models, charts, and placards, from Massachusetts, Rhode Island, and New York dental hygiene councils, which are allies in the national campaign projected.

Proof of necessity for such campaign is offered in a placard prominently displayed which reads:

"If New York school children are typical of school children in the United States there must be in the schools of this country 12,000,000 children having physical defects more or less serious that should receive attention from parents and family physicians.

"Of school children in New York City and in the United States there must be handicapped by malnutrition, 41,600 in New York and 1,248,000 in the United States; by enlarged glands, 5,460,000 in the United States; by bad teeth, 8,988,000 in the United States; by defective breathing, 7,092,000 in the United States."

A pamphlet written by Dr. William R. Woodbury, neurologist, to the Boston dispensary, which will be distributed at the exhibition, contains the following statements:

"Dental cripples cannot get full value from food. Bolted food does not properly nourish.

"A young woman with a neglected mouth finds it difficult to obtain and keep a good position in business and among her friends. White, even teeth add greatly to the attractiveness of any face. They carry assurance of neatness and honesty—excellent recommendations.

"Unsound, irregular teeth, swollen tonsils, and adenoid growths are closely related. Neglected teeth and a dirty mouth cause diseased tonsils and obstructed nose."

We may confidently look for the campaign of education now going on to result in a great reform in this too long neglected field, and we believe that the literature of our profession during the next year will contain many useful suggestions along this line.

In August, 1909, the Fifth International Dental Congress was held in Berlin, Germany. The proceedings have not yet been published in full in English so we cannot pass on the value of the work done, but from all accounts the meeting was in many respects a noteworthy one. The encouragement given these undertakings by foreign governments might well be emulated by our own government. In Berlin the meeting was held in the beautiful Reichstagsgebaude—the German House of Parliament—which lent distinction to the event at the outset. In Australia on the occasion of the First Australian Dental Congress the proceedings were published at the government's expense, which is somewhat different from our own experience in these matters in this country. This is the kind of governmental paternalism which we believe to be for the best interests of the people at large.

NEW BOOKS.

The publication of books is one of the encouraging features of the year's work. It is not only that new books have come out, but that new editions of previous works have been issued in a very satisfactory number. This is an indication that books are at least being bought whether or not they are being read by the dental profession. Several important works have appeared in foreign languages, one in French, "Des Dents a Pivots," by Victor Dubois, and another in Spanish, "Anomalies of Occlusion," by our good friend Dr. Luis Subirana of Madrid. The first is the initial volume of a "Library of

Prosthetic Dentistry," and is a very complete work on the crowning of teeth illustrated with every conceivable kind of pivot tooth. The latter work is worthy of the distinguished author and adds materially to the Spanish literature of the subject. In Germany we have issued the "Handbuch der Porzellanfullnugen und Goldeinlagen," by Dr. Ernst Smreker, and an "Atlas der Zahnheilkunde," edited by Karl Witzell. These are both very creditable works, the latter being the first of a notable series of atlases of dentistry.

Some of the more prominent of the new books issued in English are as follows: "Transactions of the First Australian Dental Congress, Sydney, 1907," "History of Dental Surgery: Contributions by Various Authors," Edited by Charles R. E. Koch, D. D. S., and published by the National Art Publishing Company of Chicago. This work is in two volumes, the second one being by Dr. Burton Lee Thorpe and consisting of "Biographies of Pioneer American Dentists and Their Successors." Another important work is "A History of Dentistry," by Dr. Vincenzo Guerini, of Naples, Italy, published by Lea and Febiger under the auspices of the National Dental Association. Dr. B. E. Lischer of St. Louis issues a small volume "Elements of Orthodontia," published by the C. V. Mosby Company. Two notable works on Materia Medica and Therapeutics have appeared, viz: "Dental Materia Medica and Therapeutics," by Dr. Hermann Prinz, published by the C. V. Mosby Company, St. Louis, and "Modern Dental Materia and Therapeutics," by Dr. J. P. Buckley published by P. Blakiston's Son and Co., Philadelphia. Our professional literature is much enriched by the addition of these two volumes. A small book of much information is issued by Dr. Alphonso Irwin of Camden, N. J., on "Dental Laws" containing the requirements of Boards of Dental Examiners throughout the world.

Of the new editions of works previously published we have the following: "Essentials of Bacteriology," sixth edition, by M. V. Ball, M. D.; "Dental Medicine," by Dr. Ferdinand J. S. Gorgas, eighth edition; "Dental Metallurgy," by Drs. Essig and Koenig, sixth edition; "Dental Materia Medica, Therapeutics and Prescription Writing," by Eli H. Long, M. D., third edition; "The Principles of Bacteriology," by A. C. Abbott, M. D., eighth edition; "A Manual of Chemistry," by W. Simon, Ph. D., M. D., and Daniel Base, Ph. D., ninth edition; "Anatomy and Histology of the Mouth and Teeth," by I. Norman Broomell, D. D. S., and Philip Fischelis, M. D., third edition; "A Compend of Histology," by Henry Erdman Radasch, M. S., M. D., second edition; "A Text-Book on the Pathogenic Bacteria," by Joseph McFarland, M. D., sixth edition; and "A Manual of Normal Histology and Organography," by Charles Hill, Ph. D., M. D., second edition.

A little work which concerns us particularly in this state is "A Dental Directory of Illinois," published by this society under the supervision of a committee consisting of Drs. A. D. Black, Fred W. Gethro and R. W. Hood.

To sum up we have a list of more than twenty volumes, either original issues or new editions, which we think, considering the character of the work done and the periodical literature in connection with it, presents a very creditable showing for the year's work.

One improvement which is urgently needed in the profession relates to the preparation of papers for publication in our journals. It probably concerns the editors more than any one else and yet it is of sufficient importance to readers to justify your committee in calling attention to it at this time. This is the necessity for writers of papers to condense their ideas into more concrete form to make them effective. There is much laxity in this respect, and much useless verbiage. If we are to bring the quality of our literature up to the standard which should be maintained by articles written on professional topics we must give some study to this matter of form, and we must eliminate the useless to make more effective the essential ideas which we wish to portray.

Carelessness in the preparation of papers to be read before societies leads to much confusion. As one brief example let me say that I, as editor, receive many papers without the name of the author on the manuscript, and I have even received through the mail a paper for publication minus the title of the article or the name of the author and not the slightest means of identification except the post mark on the envelope. This latter enabled me to finally trace its source by writing to the secretary of a society who, I knew, lived in this town. Men who do things in this way need to be reminded that editors are not omniscient, and that some consideration is therefore due them in the preparation of papers for publication. If writers will coöperate with editors we will have a literature more readable, more effective and altogether in better keeping with our highest professional ideals.

REPORT OF THE COMMITTEE ON DENTAL ART AND INVENTION*

BY DR. J. CLARK WADDELL, EAST ST. LOUIS, ILLINOIS.

In presenting the results of the year's achievements in Dental Art and Invention, your Committee, through correspondence with the better manufacturers, dealers, and inventors of goods pertaining to dentistry, has endeavored to collect their most recent products.

In a general review of the articles submitted it would seem that every department of dentistry has found some new improvement. The great wave of prophylaxis, at this time sweeping over the country, and the general demand for more natural appearing and artistically shaded substitutes for natural teeth, is mirrored in the offerings along these lines.

The following report covers the different articles submitted, together with the claims of merit for each:

The S. S. White Dental Mfg. Co.:

This firm offers an attractive display consisting of the following:

1. *Silver Abscess Socket Probe.* A Silver Abscess Socket Probe mounted in a hub, both ends of which are threaded to fit a tubular holder. The length when operating 5½ inches; closed for the pocket 3 inches.

2. *Tartar Solvent.* A solution of Ammonium Biflourid; formula of Dr. Joseph Head. For the cleaning of the roots in pyorrhea treatment instrumentation has been the standby of the profession. Tartar Solvent makes instrumentation easier by softening the deposits and dissolving the microscopic specks of tartar missed by the instrument. It does not affect enamel or cementum.

3. (a) *S. S. W. Cusp Die Plate.* Made of a very hard bronze capable of withstanding hard usage. Introducing a marked improvement in the balancing of the forms. Whatever form you find for the right side, you find its mate for the left side. There are eighteen upper and eight lower molars for each side, and twelve upper and eight lower bicuspids for each side, a total of 100 forms.

(b) *S. S. W. Die Mold.* This die mold is calibered in a conical form, one end making the die for molars and the other for biscuspids.

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*Read before the Illinois State Dental Society, May, 1910.

The coning of the caliber makes the hub easy of removal from the mold.

4. *Diatoric Gum Sectional Biscuspids and Molars.* A mold of diatoric gum section biscuspids and molars harmonizing with the platinum pin incisors and cuspids. It has a considerable range of adaptation, permitting the use of gum section combination sets with the same relatively low cost.

5. *Orangewood Points.* These are made from selected wood, are uniform in size, and fit Porte-Polisher's Clamping Jaws, giving a steady, firm grasp. Porte-Polisher is adjustable and operated by a milled thumb nut.

6. *Celluloid Handle Tooth Brush, Child's Size, No. 22.* A smaller size of celluloid handle tooth brush for children's use; made in two colors, blonde and clear amber, and three grades of bristles—hard, medium, and soft.

7. *Silver Abscess Probes (Dr. Brackett's Pattern).* These probes were suggested by Dr. Chas. A. Brackett. Specially adapted for exploring the fistulae of alveolar abscesses. The points are slightly enlarged and blunt; the handles are made of knurled steel.

8. *S. S. W. Bur Block.* This bur block carries eighteen dozen engine burs and six dozen angle burs. The holes are cut at an angle slanting from the front so that no one instrument hides another.

9. *S. S. W. "Full Cut" Plate Shears.* A new form of shears which will make a clean cut from heel to point, every part of the blades cutting equally well. The handles also have been re-formed on practical lines and supplied with bosses on the finger-hold to keep them apart. Their widest "open" is about where your grip becomes effective. As they are brought toward each other the power increases, thus obtaining the greatest power as the cut nears the points of the blades. There is no tendency of the blades to push the plate away. They bite into the plate.

10. *Flat End Taper Inlay Burs.* These flat end taper inlay burs are not intended for cutting enamel, but for shaping a cavity for inlays so as to avoid undercuts. Their flat ends enable you to make sharper angles than with rounded instruments. The heads are long enough to reach from the surface of the teeth to the bottom of the cavity. Made in three sizes, plain cut, and three sizes, dentate, for chuck and cone-journal hand-pieces and angle appliances.

11. *Orthodontia (Separable) Hinge:* Invented by Dr. Rudolph Sykera. It consists of two pieces of brass wire twisted and interlocked so as to constitute a most excellent hinge when properly attached to models. The two parts are readily separable. Made in four sizes.

12. *S. S. W. Pulp Canal Cleaners.* These cleaners are made in four sizes: No. 1 extra fine, No. 2 fine, No. 3 medium, No. 4 large and assorted.

13. *Gregg's Plastic Instruments.* These five instruments are made after designs approved by Dr. C. T. Gregg. Made in cone socket (only).

Lukens and Whittington:

1. *Logan-Buckley Pyorrhea Instruments.* This set of twenty-five instruments are so designed that the teeth may be scaled systematically, each separate tooth surface being provided for. All, except four, are barbed and may be better classed as planes, as they are used in that way. Special provision for deep pockets is made in long blades with narrow points. An excellent set.

2. *Cryer's Aseptic Root Extractors.* Made entirely of metal, the steel instrument being welded in a brass handle so that it cannot become detached by constant sterilization. The handles are designed to give the operator a firm and comfortable hold.

3. *Ames' Cement Instruments.* Set of three non-corrosive cement instruments made after designs approved by Dr. W. V.-B. Ames.

4. *McDonaugh Files.* Set of eight, conveniently shaped files for pyorrhea use.

5. *Volland Aseptic Lance.* Made of finely tempered steel, and capable of carrying the keenest edge and finest point consistent with its use in most delicate operations.

6. *Nevins Forceps "Specials".* These forceps are particularly adapted for the extraction of the anterior teeth and roots when crowded to the buccal, lingual, or labial side of the arch, so that the space between the adjoining teeth will not admit the ordinary sized beak. This is made possible by the small beak.

The Randall Faichney Co.:

This company offers a very meritorious exhibit of their different syringes, among which are the following:

1. *Bismuth Paste Syringe.* An all metal syringe, including

two points, adapted for use in the application of sub-nitrate of bismuth paste.

2. *Aspirating Syringe.* All metal, three ring syringe.

3. *Flexible Canula.* Can be attached to any Moffat water syringe.

4. *Flexible Canula.* Made in silver, used similar to (3) and practically indestructible and extremely adaptable.

5. *Triumph Water Syringe.* Made in three sizes.

6. *Boston Self-Filler.* All metal syringe, including two points, which, from its construction, is easy to manipulate. The company also submits a variety of hypodermic needles for dental use.

Buffalo Dental Mnfg. Co.:

1. *B. D. M. Co.'s No. L Tool Bracket.* Made of iron, japanned black, and ornamented or pure white enamel. The parallel arms swing horizontally and are capable of being raised or lowered and are sustained in position by a segment and pawl.

2. *Young's Orthodontia Burner.* Consists of a burner pillar in sections, having a ball at its lower end to enable it to swivel in the socket in the base in any direction desired, from a vertical to a horizontal position. The lower cock is for the blast and the upper for the admission of gas. When desired to use a blowpipe, the sleeve on the pillar is turned to close the openings, both cocks opened, and a blast of air applied. A neat article.

3. *Ellis Duplication Flask.* For use in the duplication of orthodontia models, by the gelatine or glue methods. Made of aluminum, with a hinged base—so constructed as to allow an even thickness of gelatine at all points. An undercut groove at the base, next the hinged portion, prevents the mold from warping under the influence of the setting plaster, or from jar, thus insuring a duplicate of exactly the same proportion as the original.

4. *Pullen's Molar Band Soldering Clamps.* Set of five clamps, so constructed as to hold automatically in a position the parts of a molar clamp band while being united with the solder, facilitating their construction or repair.

Johnson & Johnson:

1. *Aseptic Glass Cotton Font.* This article is a unique and attractive novelty in the line of aseptic preparations and appliances, holding a special, self-feeding package of absorbent cotton. The glass container is sufficiently heavy so that but one hand is necessary

in detaching, with the pliers, the amount of cotton desired in drying cavities. Can be reloaded in a moment's time.

The little depression in the cover top can be used for the medication of dressings, and in reverse position is used as a tray for pledgets of cotton.

The Dentists' Supply Co.:

1. *Anatomical Bicuspids and Molars in Twentieth Century Teeth.*

This firm offers articulated models exhibiting the anatomical moulds in Twentieth Century bicuspids and molars, showing the medium and large sized teeth. The claims of merit for these moulds are:

(a) They afford better articulation than has heretofore been possible with artificial teeth.

(b) They do away with most of the grinding heretofore necessary to secure articulation.

(c) Ease, rapidity and accuracy in setting, meeting requirements of anatomical articulation.

(d) Each size may be combined with several moulds of anteriors.

(e) The use of comparatively few moulds, thereby simplifying denture making.

THE CLAUDIUS ASH CO.

1. *An Improved Plasted Plane.* This apparatus consists of a scribing tool, an adjustable rubber-padded tripod, a shooting board, a bronze plane, and a piece of plate glass. Particularly adapted for orthodontia model making.

A. C. Clark & Co.:

1. *The Clark Dental Lavatory.* Made with white metal or solid porcelain top, and so constructed that simply pressing the button controlling the valve causes water to flow from both nozzles and provides a stream for the brush covering entire bowl, which revolves with a body of water. Powder, paste, saliva, etc., do not strike the bowl proper, but are deposited on the flushing veil of water and immediately washed from view.

The O'Brien-Worthen Co.:

1. *The Giant Flanigan Centrifugal Plate-Casting Machine.* This machine is constructed on the well-known centrifugal principles, and due to the great force a pressure of twenty pounds is maintained

on melted metal over 60 seconds, assuring extreme density of the metal.

The Improved Flanigan Centrifugal Machine. This improves on the previous pattern of this machine. It is so arranged that it can be adjusted on the bench and removed when not in use, thus saving space.

The W. V.-B. Ames Co.:

1. *Ames New Oxyphosphate of Copper "Special."* This cement is especially adapted for stiff mixes.

2. *Cement Shade Guide.* This company also offers suggestions regarding cement shade guides, in which the cement pellets are incased in celluloid capsules.

Dr. F. E. Roach:

1. *Roach's Automatic Hot Air Syringe.* A metal barrel enclosing a breech loading heater, over which the ai ris forced by means of a rubber bulb from beneath. The point swivels for convenience of reaching either upper or lower teeth. A comfortable temperature can be maintained for several minutes. A practical improvement.

Dr. E. S. Hodgson:

1. Hodgson's Hand-Piece Syringe. This apparatus is designed to facilitate the grinding of teeth for crown and bridge work.

The attachment for the hand-piece supports a small nozzle, and a compressor acting on the rubber tubing which connects the nozzle to an elevated receptacle containing liquid. This attachment may be used as a chip blower with compressed air.

Dr. G. E. Silverling:

1. *Silverling's Odontometer.* This instrument consists of a metal barrel on the end of which is a locking fork. A plunger is fitted to the barrel with a small opening in the head.

A wire loop passed through the opening is locked on the forks and after adjusting to the root and pressing the plunger a correct measurement is secured. Recommended for difficult cases.

The J. Austin Dunn Specialty Co.:

Dunn's Celluloid Points. Flat, tapered, celluloid points, to be used as a substitute for the steel broach in treating and filling root canals. Especially designed for use in small canals which are difficult of access. Paper points of the same form for drying out and testing the contents of root canals.

Klewe & Co.:

1. *Kolynos Dental Cream.* This company offer a sample of

their new dentifrice, together with a certificate of analysis of the same.

Dr. J. W. Ivory:

1. *Ivory's New Matrix Retainer, No. 8.* This retainer consists of an arm supporting a vise in the jaws of which are small holes through which the matrix bands are threaded. A long thumb screw, passing by a threaded movement through the vise firmly holds the free ends of the band. A backward movement of the vise, causing the tightening of the band around the tooth, is governed by a middle nut. It is especially serviceable when an entire crown has to be built up, or a wax impression is to be made for a large inlay.

Pinches Dental Mfg. Co.:

1. *Bone Powder Measure.* A little device used to measure the powder of Ascher's Artificial Enamel in order to obtain correct proportions on a chemical basis.

2. *Baldwin's Tortoise Shell Instruments.* Set of twelve. Specially prepared tortoise shell points, mounted on steel handles by means of gum shellac.

3. *Tantalum Dental Instruments.* This company presents the results of Dr. Ascher's latest investigation in the form of three Tantalum instruments to facilitate the working of silicon cements. Tantalum is a very rare and expensive mineral body, much harder than steel, and not affected in any way by acids, except by dydrofluoric acid. These instruments are guaranteed not to discolor silicon cements one particle, either by oxydation or by grinding off.

Schieffelin & Co.:

1. *Phenandyne.* A phenol derivative possessing powerful antiseptic and analgesic properties. Devoid of any corrosive or escharotic action upon the mucous membranes of the mouth.

PROCEEDINGS OF SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting was held February 15, 1910, with the President, Dr. W. H. G. Logan in the chair.

Dr. E. K. Blair, Waverly, Illinois, read a paper entitled, "The View of the Business Side of Dentistry and a Statement as to the Professional Outlook Generally."

Dr. Lucien H. Arnold:

Mr. President and Fellow Laborers:

It is wonderful how much more can be gotten out of a paper written by a clever man, when one hears the author read it as beautifully as Dr. Blair has done, than can be gotten from the printed pages. It is a strong argument in favor of our Dental Societies.

I need not tell you how apropos is Dr. Blair's paper for you have all heard it and that is enough.

I have given the comparative paucity of dental remuneration much thought and conclude that the reasons therefor are not deeply hidden.

I had hoped Dr. Blair would deal more directly with the details of getting one's just dues—details as to how the Doctor found the weak spots in the financial affairs of his office. I should have relished more explicitness in the matter of the Medical Fee bill he mentioned as having been so increased without public objection. These are important details we should know and consider tonight, for that is what the title of the paper suggests. It must be accepted at the very outset that the most important detail of earning money is to render one's very best services for it. That is a detail which is too often overlooked.

The Essayist says: "We are compelled by force of circumstances to give earnest heed to the practical business side of life, as well as to maintain continuous effort to keep pace with the *scientific* lines within our profession."

Note that his phraseology intimates that he considers the business side of his profession *un*scientific.

It is maintained by many mathematicians that the science of mathematics and its braches is the only true science. This may be extreme. It would appear that the *subject* does not determine whether or not the work is scientific.

Then why should we slight the matter of making a set of scientific records of our office finances which is of such vital import to us while we pursue with such care and accuracy the making of another set of records which, to say the least, is of no more vital consequence.

The Essayist avers that the compilation of dental records and the compilation of the financial records of a dental practice are "—— two lines of thought pointing in opposite directions."

It seems to me that they are parallel, require similar handling and are of similar importance in their own ways.

There are two things which have ever kept people from attaining the best results from their labors. I refer to lack of detailed knowledge and lack of courage of their convictions, and I will show how they affect us later.

I agree with the essayist that we have been too busy with the science of dentistry to give enough heed to our accounting. And further, as he intimates, many of us were engaged in other pursuits, often not professional, and acquired therein ideas of meager compensation which have never been reconsidered as to their appropriateness when, later, the gentlemen entered the higher field of professional effort. Hence one reason why so many of us fail to receive just compensation for our services is because we have given the subject no thought. And consequently we lack detailed knowledge of our business—though not necessarily of our profession.

And again, sometimes one *does* keep financial records as well as professional records and sees from his records just where and how he *is* underpaid, but he has been so long in practice that he has established a precedent in fees which he dare not try to increase for fear of losing even the little he has.

The reason we are poorly paid is because we are ignorant of the details of our business or we lack the courage of our convictions to ask for what of right belongs to us, even after realizing that the emoluments *do* belong to us.

The figures the Doctor presents show that there is plenty of work and to spare and will be for a long time to come. And if we convince the public that they should visit the dentist as often as we know they should for their own good, there will be vastly more to do. But of what profit is that to us if we fail to receive better returns than we have in the past.

The manager of one of the supply houses expressed himself to me in a way that sank in. He said that it seemed to him that the one thing that the average dentist thought of was to keep himself at work. To keep on spending his time and his money and his *very life* in the service of others and to give no thought to the getting of the proper returns for his work that he and those dependent on him were entitled to. Was he not right?

No doubt some misguided individual tonight will say that we should not consider the question of fees, or that when our work is properly done the fees will come, or that it is improper here to consider the raising of our fees.

Let me say in answer to such arguments that they are all idle vaporizing—mere talk. Some of the greatest men in our profession, as we have recently been told, have given enough thought to the financial side of their work to be now protected against want. I have little patience with those who would carry the impression that it is beneath professional dignity to consider financial matters in a sufficiently serious light to prevent their becoming objects of charity when perchance they are incapacitated. The ethical aspect of business affairs was mentioned.

As I understand ethics it embraces absolute justice to all. Why is it not just as ethical to ask for and insist on receiving an honorable, fair *reward* for service rendered, as it is to *render* that service?

Honorable exchange requires that *each* shall receive full value for what he contributes to the transaction. That is a scientific law of business.

And I maintain that it is just as ethical to see that one party gets what belongs to him as to see that the other is equally fairly cared for.

The essayist foreshadows the increasing ability of the profession due to better college requirements and training. And I would add that just as fast as that increased ability is exhibited the public will approve proportionately better fees, provided of course, that we have courage to ask for what belongs to us and insist on having it.

He seems to hint at a general understanding among dentists as to a minimum fee scale. This would do no harm and might be productive of good in the way of bolstering up the weak-kneed men of the profession who are too timid to ask a fair fee for their services and might also serve to educate that portion of the public which seems to think that a dollar pays for "cleaning" the teeth, no matter how well or badly it is done nor how long it takes, and that other fees should be in proportion.

But let me say that there can be no fairness in a uniform fee for a given service.

The lack of detailed knowledge, as I have said, consists in not knowing what one is doing financially. Not knowing what a given class of operations cost the office in time and money nor what returns are realized therefrom.

These things are necessary knowledge in order to dispel the lack of detailed knowledge underlying and responsible for being underpaid.

If a man knows beyond a doubt that when he is paid for a given operation, only 10 or 20 per cent of the fee is his for his labor, and that the rest goes for material, rent, light, heat, office girl, laundry and other expenses, and if he also knows that another class of operations, after paying its just share of all the above named expenses, leaves for his services 80 or 90 per cent of the fee received, it is obvious he knows the first class of operations is underpaid.

And a little courage, born of this exact *scientific,* if you please, knowledge, will enable him to make the hours of his labor more nearly even in earning capacity. But if he does not *know* his *business,* he has not the ability to place his finger on the weak class of operations and consequently has not the courage dependent thereon, why, he is at the mercy of the "tight fisted" public.

Our net returns of the various earning accounts are the correct index of the value the public places on our ability in those directions. They are the *efficiency* marks the public gives us in those branches of our profession.

If we think we are more efficient than the indices show then it is up to us to know the business side of our offices and to spunk up a little and get what is coming to us.

I would epitomize thus: To be better paid we must

1st. Render full and fair value in the shape of our very best services.

2d. Know every detail of our office business, and

3d. Have courage to ask a good honest fee and keep after it till we get it.

I thank you, Ladies and Gentlemen, for the courteous attention you have accorded me.

DR. THOMAS L. GILMER:

Dr Blair has given us a broad, elevating and intelligent discussion of a timely subject. We all realize that the dentist's pecuniary returns are inadequate to the service rendered, especially when we consider the benefits bestowed upon mankind through his services.

Little instruction is given in economics to the student in dentistry while preparing for his life work. A very few schools do attempt training in this useful branch, but the number is so few that it is almost a negligible quantity. A student should not be turned out to commence his life work without giving him knowledge of practice building and some instruction as to a scientific method of making charges for his services. Few dentists ever fully learn the latter. To be highly qualified to practice one's profession, and at the same time have a financial sense, does not, in my opinion, necessarily constitute a dual existence, as indicated by the essayist. The two combined give the superior man. They are a combination forming, when properly adjusted, a perfect whole. Continuous growth, mentally, demands remuneration to give opportunity for better facilities for this growth.

It is the duty of all men to cultivate financial methods, that they may properly care for their families and educate their children. Furthermore, he should not forget that old age will surely come to him, if he lives, and what is more pitiful to see than a proud old man who has been prominent in his profession, dependent in his last days upon the charity of his more fortunate professional brethren. Habits of economy and providence should go hand in hand with professional growth. If properly balanced they give the well rounded man. It is true that the best qualified and most successful dentists do not receive fees as large as the best lawyers or the best physicians and surgeons, but the average dentist fares almost if not quite as well in this respect as does the average doctor of medicine or the average lawyer. Neither the average physician nor the average lawyer is blest with a large income.

If we select twenty-five dentists, twenty-five physicians and twenty-five lawyers in any large city, all being equally prominent, i. e. the dentist prominent among his own professional brethren, and the physician and lawyer among theirs, we find a great disparity in their incomes. The lawyer will have the advantage over the physician and the physician over the dentist. It is a strange commentary on man that he will not begrudge a lawyer who saves for him fifty or a hundred thousand dollars a fee of ten thousand dollars or more, while the same man would be unwilling to pay a physician as much for using his best efforts at saving his life or the life of one of his family. We can understand some of the reasons why one willingly pays a fee to a great internal medical man or surgeon, which would not be tolerated from the dentist. In the first place the physician and surgeon is supposed, in many instances, to be dealing with life and death, while the dentist is not supposed to have any such important role in life. In the second place, the laity has but small conception of what dentistry is or how closely it is related to medicine, or that its practice is the treatment of and the prevention of disease. Dentists are looked upon as a rather high grade of mechanics, as the surgeon once was. Until we can educate mankind out of this erroneous conception we will not come into our own.

Much may be done by bringing the rank and file of the profession up to a higher level. As said by the essayist, the better and broader educated we become, the better will we be appreciated, and as we are better appreciated compensation will increase. Dr. Evans told us at the Black banquet some of the things we were neglecting to do which we should do. Did we enter into a systematic work among the poor and the school children for the betterment of their health through the care of their mouths we would soon give the people a public demonstration of what dentistry is, and at the same time improve the physical condition of the coming generation. We find scores of young physicians glad to give a part of their unemployed time to dispensary, hospital and other free service. So should young dentists devote some of their spare time to such work. This would add to their knowledge and skill, and pave the way to an influential practice, and at the same time teach the people their needs and give a wider and broader conception to the public in general of what we are and what we do for man's appearance, comfort and health.

I am well aware, as the essayist has said, that the number of people to each dentist is seemingly not large, but if we do our duty in educating the people to their needs we have not half enough dentists. The people are being educated, too slowly it is true, but this education probably grows apace with the men being graduated. There is no probability that dentistry is anything like so crowded as is medicine.

There are many fewer dentists in the land than physicians and dentists are not being made nearly so rapidly. Even the busy dentist does not average more than four or five set engagements a day. Taking out Sundays and holidays, broken engagements and vacations, he does not average over two hundred and eighty work days in twelve months. If he averages four and one-half patients a day the number is a trifle less than the estimate given for Chicago, where we have comparatively a large number of dentists to population. Then when we take into consideration that we see many of these four or five patients four or five or more times, we cut the number of individuals served, probably one-half. It would not be safe to baldly state that the average busy dentist does not serve over six hundred patients in one year, but it may not be far wrong. If it is true, and if there are fifteen hundred dentists in Chicago, we have only sufficient to serve nine hundred thousand people, less than half the population. If all the people demanded our services, then more than three thousand dentists would be required to properly serve them. It has been said that about one-fourth of all the graduates fall out of the profession for one reason or another, then practitioners are dying all the time. If we educate the people to their needs and do all for them that should be done, it will be some time yet before there will be an overproduction of dentists.

It is true, as was said, that we do ourselves an injustice by not fully realizing how much good we are doing our patient in curing him of and fortifying him against disease. Did we more fully know this we could feel justified in getting greater compensation for our services. We are too inclined to think of our work as a mechanical service, such as might be rendered by a rather high-grade artisan. We should think of our work as caring for a part of our patient's body, so essential to his well being.

Let it be borne in mind by the young men that it is not all in getting large fees which assures a competence, but fully as much in the taking care of the fees and safely investing them. A little money invested and added to grows wonderfully fast. You know how fast interest grew when you were in debt. It grows just as fast if it is coming in.

In conclusion, a word about the essayist. But few, if any present, are so intimately acquainted with Dr. Blair as I, and I am going to venture a few words to the younger men regarding him because he has been a success not only in a professional way, but in a business way, and has not neglected his profession on account of money-making, but carried on both and been successful in each.

In 1876 I left Waverly and Dr. Blair stepped into my office. I said to the people there: "Here is a capable, honest dentist, he will succeed here." He so impressed me and time has proven that my conclusions were correct. I was anxious to get some one to succeed me whom I could unreservedly recommend. It was not long before the people realized that Dr. Blair was a worthy acquisition to the community, a man they were proud of as a fellow citizen, a helpful man to aid in carrying on the affairs of the community. He had not been there long when they wished him to become an alderman. He was elected to this office and made an efficient public servant. Then they wished to make him mayor, he declined that office. He grew all the time professionally and socially. His finances were low when he went to Waverly, in fact he was a thousand dollars in debt, but with each year he saved a little from his earnings and by that means got out of debt and accumulated a little.

In a few years the people wished a good man to represent them at the state capital, so they sent him to the legislature. He made a capable lawmaker, and do you know, gentlemen, he came back to his constituency with his hands absolutely clean. (Applause.) He could have gone again, but he could not afford the time from his professional work. At one time he was the president of the School Board.

Through habits of economy and industry he added to his savings and bought a farm, and now he has three. His experience shows what a man can do who is capable and saving. He has kept up with his professional studies and at the same time looked out for the dollars and cents. It is safe to say that he has not invested his money in wild-cat schemes. The fact that he has not neglected his professional duties is indicated by the fact that he was made president of the Illinois State Dental Society. You know what excellent service he has rendered as a member of the legislative committee of the Illinois State Dental Society. Dr. Blair is an example of what may be accomplished by any bright, honest young man, if he will apply himself in the same manner and be provident. (Applause.)

DR. JOHN P. BUCKLEY:

Dr. Blair bought out Dr. Gilmer and began his successful career three years after I was born. Now, I am asked to get up here and discuss this problem with these two men. (Laughter.) I knew, as did Dr. Gilmer, that Dr. Blair was sufficiently successful to own several farms in Illinois, and I wondered, being a dentist myself, how it was possible, but I learned from Dr. Gilmer tonight that Dr. Blair always saved a little more than he made. (Laughter.) That is something they may do in Waverly, but which they will not permit us to do here in Chicago. (Laughter.) I have had more than one reason to admire the essayist. I have been with him on committees and on the Council of the Illinois State Dental Society, and have always found him to be broad-minded, liberal and fair, and I am sure the reason that he has met with the success that he has in the practice of denistry has been because of these sterling qualities which he possesses. If I may be permitted to repeat what I have said before, not to this audience, but to other audiences, I would say that any man can succeed if he is honest, capable and deserving. In this day and age we need men who are honest. I do not believe there ever was a time in the history of the world when there was such a crying need or demand among men for old-fashioned honesty as there is today. We are forced to this conclusion when we read of the graft that is going on in this city and in other cities. We need more men, not only in dentistry, but in other walks of life, who are capable, and no man should hope to succeed in life unless he deserves success.

I regret that I did not have the time to write out my discussion as did the two gentlemen who have preceded me. If I had been Dr. Arnold and had written out my discussion and had read over the epitome, I think I would have destroyed the discussion and simply read the epitome, because that is the best thing he said, —"render good service: charge a good fee, and do not stop until you get the fee collected." That sounds good to me. I do not care what fee you get if you get it honestly. If you render service that will be such that you are not ashamed to let another practitioner know that you charged that fee for that work, and then feeling, as the doctor indicated, that you are entitled to the fee that you charged, try and collect it, and a fee is not worth anything unless you can collect it. The most satisfactory thing to me that occurred at our recent banquet in honor of our dear friend, Dr. Black, was the statement by Dr. Gilmer, namely, that if Dr. Black would choose to do so he could retire from his professional work and live without another effort in that direction; that he owns a farm and a well-paying farm; that he owns enough real estate in Jacksonville, Illinois, to support him. Dr. Blair has indicated that there are two sides to our lives. Dr. Gilmer objected to the word dual life. Be that as it may, Dr. Blair indicated we have the scientific side to develop, and as we are developing the scientific side we ought not to neglect the welfare of ourselves and our family. Where is there a man who has spent more time and money in developing the scientific side of dentistry than Dr. Black, and here in the evening of his life he has accumulated enough money that he can retire, although he does not intend to do so. That is indeed very gratifying to me.

Dr. Blair and Dr. Gilmer both referred to the number of patients that dentists probably have in a year. I think they agreed it was about six hundred and sixty-six or something like that. It would be better for our patients, it would be better for us financially and in other ways if we had fewer patients. I was working on a new patient today; I examined her mouth thoroughly and found a pyorrheal pocket and told her so, and she said this to me: "Doctor, the average dentist does not examine the teeth thoroughly enough. I have been going to dentists frequently and I always have to point out to them work to do." I know there are men in this city, and they are friends of mine, who say that they never try to do all the work in one mouth that is to be done; that they cannot do so because they have too many patients. The best thing for such a dentist to do in my opinion is to lose some of his patients; if he cannot lose them in any other way let him charge a little higher fee and he will lose some of them, and the ones he does work upon, let him do all the work that is to be done. Is it right, when you see a small cavity, to let it go, because you are too busy and have not the time to fill it until it is sufficiently large for the patient to call attention to it? I say, no. When you see these cavities fill them, and when you have got so many patients that you cannot work for all of them and do all there is to do in their mouths, do something so that you will lose some of your patients. So I repeat the statement, that it would be better for all concerned if some of us had fewer patients.

Dr. Johnson, in a recent editorial, advocates that when you get nervous buy an automobile. It is a nervous sedative; but a spade in the garden in the back yard is just as good a nervous sedative as a ride in an automobile. We cannot all afford automobiles, but we can all afford to buy a spade. If it had not been for the fact that our President saw fit to say that I had recently purchased a machine, I would not say what I am going to say, but I will say it now, that no dentist who has a family to support has any right to purchase an automobile until he owns his own home, free from encumbrance, and has a sufficient amount of real estate—I do not care whether it is farm land or city property, to support his family in case something happens and he would be disabled from work. (Applause.) When he gets that he can buy an automobile; but this idea that is prevalent among dentists, as it is prevalent among other men in other walks of life, of living as good as our neighbor regardless of the amount of money our neighbor has and regardless of the amount of money we have, is wrong. That is a woman's idea and should not be countenanced by men. (Applause.) Both the essayist and others have referred to the fact that we should charge for our work. Only last week my associate, Dr. Elliot, told me of this experience: he saw as nice gold fillings in a patient's mouth as he had ever seen in his life. One of them was a large one in a central incisor which involved the cutting edge and the dentist cut it clear across. This filling was beautifully finished and polished, and the doctor, without being unduly inquisitive, found out that some dentist in Ohio had inserted these fillings and for the large one he received $4.50. Think of it! He put in good fillings all right, but was entitled to a fee four or five times as large because he rendered the service. There was a man who delivered the goods, so to speak, and rendered service honestly and earnestly, but did not have the nerve to charge the fee. I hope he collected the fee which he charged.

I think the real reason I am on this program tonight is on account of a peculiarity which I did not know I possess. That is to say, I did not suppose I was any different from any other dentist until last week when a patient returned with a bill. She had come to my office; I spent considerable time in examining her teeth carefully, made an appointment, but she did not come back, and she brought in the bill which I had sent her and wanted to know if it was right. I said, "Yes, what is the matter with it?" She replied, "you didn't do anything." I said, "didn't I make an examination?" "Yes." "And didn't you ask me how much it would cost to have your teeth attended to, and didn't I tell you the fee for the examination and the work would cost so much and made an appointment with you and you did not return?" "Yes, but I didn't suppose you were any different from other dentists." She found out in a few words that she could not come into my office, have me make an examination, and arrange for an appointment for nothing. No one can come into my office and have me do that without getting a bill. (Applause.)

The real reason I am on this program is that I have so small a per cent of money on my books uncollected, and Dr. Logan asked me to tell you how I did it. Dr. Arnold would like to have had Dr. Blair go into details. You cannot do it and tell a man how to conduct his business. I have figured out that at the first of this year I had less than four per cent of the volume of business I did last year on my books unpaid. That is a smaller amount than I would have had had I not written on the tenth of December to those whom I knew could pay that I would appreciate very much if they would remit before the last of the month, as I desired to close my books. That reduced the amount about one per cent. I do not think I ever have of finished business more than five per cent on my books. I refuse to work for a certain class of people. In the first place, I do not work for anybody who does not pay me. The second class of people for whom I refuse to work are those who do not keep their appointments. I do not care how much money they have got or how anxious they are to pay for the broken appointment, I will charge them once or twice and if they continue to break their appointments, I do not want them. And a third class for whom I refuse to work are those who do not appreciate my services. I do not want to work for a patient, for example, who thinks that Dr. Dittmar, or any other man in this room, can do the work better than I can. My patients want me to do their work, as yours do you, and I presume that because I refuse to work for all classes of people it accounts for the fact that I have so little money on my books or bills uncollected. Here is another thing, if you will permit another personal allusion. A patient comes in and wants a lot of work done and says nothing about the amount of money it is going to cost, and makes arrangements for the work. In some way I indicate to them how much the cost is going to be. If I explain to them that the work can be done in a certain way for so much, and no questions are asked, I also indicate it can be done in another way, but that this is the best way and will cost a great deal more. That brings up the question as to how much will the other cost and how much more will this cost, and thus we have an understanding as to the probable cost. If they cannot afford to have that done, then they can afford to have it done in a cheaper way. In the same way, if I cannot afford to wear a silk hat, I will wear an ordinary cap. If a patient cannot afford a nice gold inlay, then he can afford an amalgam filling. There are too many dentists who do all work for patients in the most expensive way without looking into the question of money or suggesting to the patient how much it is going to cost. The fee they are going to charge for a particular kind of work is so-and-so, and they make no arrangement whereby they expect to have these payments made.

Now, Mr. President, having alluded to myself which you wanted me to do, I will leave the floor for others to enter into this discussion.

Dr. G. F. Williams, Seattle, Washington:

I appreciate the honor of being with you, but did not expect to be called upon to participate in the discusion on this paper. The impression seems to be quite general that we all have farms out in the West; at least, I have heard from many sources that the impression prevails that dollars grow on the trees out there, but I assure you that is not the case.

I am as much interested in the business side of dentistry as any of you. We all have to work for our money in Seattle, as you have heard, probably a little harder than some of you. I like the way Dr. Blair brought this matter before you. He has given us a true picture of the present conditions of the profession, and he does not speak of it disparagingly at all. While we have been spending a lot of energy, we have not been directing it into those channels in which we wanted it to count. I have no doubt but that tomorrow and in the future this city will feel the results of this meeting (laughter), and it may have some perceptible effect in Seattle.

Dr. Fred E. Hart, Seattle,Washington:

I esteem it a great favor and a great pleasure to be here tonight. I want to correct the impression, however, that we all have farms. Some of us in the West consider that our money is well invested if we spend some of it and our time to travel and get among you in the East. We hope to take some of your ideas back to the West, which will enable us to acquire farms, or, at least, sufficient information to help the thing along. It is certainly a great pleasure to me to attend this meeting, and as Dr. Williams has said, I have no doubt Chicago will feel the effects of it. Speaking for Dr. Williams and myself, Seattle may also feel some effects of it. (Applause.)

DR. A. BROM ALLEN:

I want to say a word or two with reference to the automobile, because when Dr. Buckley referred to it it touched a tender spot in me. Again, when Dr. Buckley spoke of having no family and of running an automobile, I thought there was one exception, at least, to the rule, and that was Dr. Gethro. Dr. Gethro has no family nor wife either, but he runs an automobile, a thing which he could not do if he had a family. I was very much interested in automobiles at one time, and soon discontinued it. I think possibly when Dr. Buckley buys an automobile and runs it for a little while he will be a poorer and wiser man.

With reference to the question of fees received by the profession, it has been remarked that I am somewhat of a robber in my line, but I would rather have somebody accuse me of being a robber in the sense of charging reasonably good fees for my services than to have somebody say that I was cheap. But in regard to the extraction of teeth, I do not see any reason on earth why all cases of extraction of teeth should be regulated by a set fee of $1.00 per, or $2.00 per, for the reason that there may be a good deal more work to do in one case than in another. Sometimes in my practice I come in contact with cases of excementosis, where the root is enlarged and in a general way I do not see any reason why I should go down, even though I have a pair of forceps in my hand, and take away half of the lower jaw, instead of taking the dental engine and increasing the diameter of the socket so as to permit that tooth to come out without lacerating the gums, which is always uppermost in my mind in operating and charge that patient only $1.00, even though the dentist who referred the case to me holloed the next day over the wire without the explanation that the difficulty warranted an extra fee, as the patient would have explained if asked if there was any difficulty in removal. It is hard for people to understand this question of fees. There are dentists in this society who will say that all they have to do when they come to my place is to ask for what they want and they get it. I am not a mind reader. I am willing to meet anybody in regard to fees if they need it, or cannot afford to pay what I want, but when they have the money, and are able to pay a reasonable price for services rendered, I want it.

I have an old patient, for whom I did considerable dental work when engaged in general practice before I specialized with Dr. Slonaker, and she always had that polite way that milliners have when they do not want to sell a hat for less than $75.00. When she came to me to have some teeth extracted she said: "I went to Dr. So-and-So and he wants from $60.00 to $80.00 to put my teeth in a healthy condition, but I cannot understand why that discrepancy of $20.00 comes in." I said to her: "My dear woman, you are right across from Marshall Field's store; you cater to the best people in town; if you wanted an evening gown, and they charged you $85.00 for it, you would think yourself in luck if you got it for that amount, and you would wear it a season and be perfectly happy, yet you want this poor man to do certain work for you for $60.00 and you do not want to give him $20.00 extra for it. Yet you expect your dentistry to last for years, without a reasonable charge for the same; placing your mouth and health in a normal condition and not for a season."

Dr. C. E. Bentley:

I think this subject in its essence is *fundamental.* The latter part of the discussion has degenerated into the question of fees. I consider the subject beyond fees. It strikes at the foundations underlying our profession, and for that reason I consider it fundamental.

Dr. Blair has, at great expense of time and thought, given you some figures with relation to the number of individuals that are available as patients, and has brought before you really a thoughtful utterance on this phase of the subject. The reason this is fundamental is because it affects our future and our present condition. We are all seeking for that sort of information that will better our condition financially and materially, as well as scientifically and professionally. The doctor referred in his paper to some things which I think should be emphasized. So far as individual success in a profession is concerned, it is largely dependent upon the individual himself. There are so many things that enter into what is called professional success, that are so subtle and so elusive that they are hard to define. But I do believe it is safe to say that a good personality, plus professional efficiency, has a great deal to do with the professional success of any individual. Further, I believe it is safe to say that an individual with professional efficiency, minus a pleasing personality, will be a failure; also that a person with an attractive personality less the professional efficiency is liable to be a success.

But the individual who is so fortunate as to have professional efficiency plus the presence of a compelling personality is bound to be a success. If you were to ask me to give you a definition of a compelling personality I could not give it to you, because of its subtleness, its elusiveness. It is so all inclusive that it is indefinable, but we see evidences of it everywhere in all lines of life. So much for the success of an individual. All men in the dental profession are not going to be a success. A few measured by the accepted standards are and will be a success. But how may we launch a scheme, or how may we introduce a campaign of education and agitation that the great average of the profession may secure a living, and if needs be a competence in old age? This is what I consider fundamental. That is what the essayist has largely dealt with by suggestion if not by direction, and that is what I think should be discussed. He has intimated to us that there are a number of people in this state and in this country who do not consult dentists. The actual facts are these: that less than 18 per cent of the people of any community in the United States consult dentists; less than 18 per cent, and in the foreign countries the percentage is even less than that. Now, there are 82 per cent that are not in touch with the dental profession, and if we must get at the 82 per cent it must be through a campaign of education and agitation. If we reach 25 or 50 per cent of the 82 per cent we are increasing our possibilities and our possible income. Does it not appear to you, as it certainly does to me, that it should be our effort in an organized way to reach a certain percentage of the 82 percent, and if we do that, we will have a greater competency and in all probability our bank accounts will be larger. Naturally the question arises, how can we increase the interest in the 82 per cent in order that they may come to us for service they sorely need? It must be through a campaign of education. What are the media that shall be employed by this campaign of education? I would say, first, that any organization as strong as the Chicago-Odontographic Society, or as strong as the Illinois State Dental Society, or as strong as the National Dental Association, should employ such means as I shall mention in an *organized* way in various communities: First, lectures should be introduced and supervised and should be given by the accredited representatives of such organizations; lectures as a means of transferring information, the importance of which I need not mention here are well known to you. It has also the added effect of having persons ask questions in heart-to-heart talks on propositions that may not be elucidated in the ordinary way. It is one means of distributing information. Second, it would be through pamphlets or booklets that are written in popular language and in the simplest terms, so that the mother can understand what the sixth-year molar stands for and what irregularity of the teeth stands for, and what diseases of the teeth stand for, and what caries of the teeth mean to the general health, the alimentary tract, etc. Therefore, we have two means of education, lectures and pamphlets, and these pamphlets should be supervised and should be used and got out by such organizations as I have mentioned. Third, the press. The greatest power for such purposes is the press. The press has heretofore been a thing that we have eschewed largely because of the fact that one might use it as an advantage over his confreres, in advertising himself. Is it not possible that we can use this great force, this great molder of public opinion, this great disseminator of intelligence, so that we can get some of our data before the ignorant masses? The thing with which to educate the masses is the press. Can we not by some system employ this powerful agent for the dissemination of some things with which the public should be familiar? The press under certain limitations and certain regulations under organization can diffuse information through various and competently written articles. That would aid mightily along these lines of dissemination. A fourth means, and one that has been so splendidly alluded to by the essayist, is the examination of the teeth of children in the public schools. Gentlemen, the most powerful educative influence Dr. Blair has alluded to is the examination of the teeth of children in our public schools. By giving certain recommendations as to the various ills that come from neglect of the teeth, and giving such recommendations as will be profitable to them for their health, would be of inestimable value. These four methods can be used for the dissemination of knowledge along the lines that have been suggested by the author of this paper, and I say it is fundamental because it reaches the great percentage of that 82 per cent of which I have spoken. And then there is another thing we must always understand and emphasize, namely, no ulterior motive must eb attached to such a propaganda. When such a campaign is introduced or such a propaganda is set forth it must be for the public weal; for the good of the public, and if we do anything else other than that our methods will be questioned. But even if our methods are questioned we are at the same time serving the public good as well as serving our own interests. That is the reason I consider these things are fundamental, and I think these things can be done, and I think it is the duty of organizations, the like of which I have mentioned tonight, to do it.

This is one of the livest subjects that is at present appearing upon the dental horizon, and the rank and file of the profession seems to be dormant so far as their interests are concerned. The medical profession is alive to this condition. The hygienist, and those who are interested in sanitation, are alive to this question. In other words, the key-note of the present day seems to be preventive medicine, abortive medicine, and the key-note of latter-day dentistry should be preventive dentistry, and the only way to prevent it is to inaugurate a campaign of education along the line I have indicated as I see it. It was Osler who said, "If I were asked if alcohol or defective teeth were the more deleterious to the human race I would immediately answer defective teeth." And it was Sir Frederick Treves who said "everybody seems to be on a diet, but if they paid more attention to their teeth there would be less need of diet." Horace Fletcher has done more than the entire dental profession to concentrate the popular mind on this subect. What are we doing? I do not think we are doing very much in an organized way. Therefore, I say, this subject is fundamental. It is fundamental in that the returns will come to you because you will have made your investment in a good cause, for be it remembered that saying, "Give to the world the best you have, and the best will return to you." So if you give to the world the best thought for others you have in your profession, the material best will return to you.

Dr. W. H. G. Logan:

It is the hope of your officers that there will be formed between now and May many local organizations throughout Cook county; that Dr. Evans, commissioner of health of the city of Chicago, may allow this society to delegate men in each section of the city to go with the medical examiner to find out the true condition of children's teeth in the schools; that they will mark a chart, sign the child's name, and then put the parent's name upon it, give it to the medical officer, and it will be sent to the home, not with the dental examiner's name for, as Dr. Bentley has said, we must not do anything to put ourselves forward. We must do something for the common good. It should be simply marked by the dental examiner. The examiner must not practice or live in that district, because if he does he will come in contact with other men's patients, which would not be fair. We hope—at least before another year is over—the children's teeth will be thoroughly examined; the mothers will be told the condition of their children's teeth; that the dental examiner must not live or practice in that neighborhood, but be a stranger to the children. In this way we hope we will get some of the great benefits the essayist has so truly drawn a picture of for us.

Dr. C. N. Johnson:

Mr. President: I hardly think it is fair to take any time to-night to speak on this subject, because I am to read a paper on it in a week or so at St. Paul. I want to pay my personal tribute, however, to Dr. Blair, and to thank him for coming here and presenting this admirable paper, a paper which has been to me one of the most inspiring contributions I have ever listened to before any dental society. As Dr. Bentley has said, it is fundamental. I have been interested in this subject ever since I began to practice as a young man, when my first experience brought me in contact with those men in the profession whose names I had read ever since I read dental literature. Coming in contact with these men personally as they began to grow old, and being confronted with the necessity of going down into my pockets with my friends to help to sustain them in their old age, it has made an impression on me and created an intense interest ever since my early days of practice, and if I have done anything to help young men I believe it has been as much along the line of teaching providence in the profession as it has in any other one respect.

The question of investments was broached, and I am sorry Dr. Gilmer did not say more about them. Let me tell you, gentlemen, the best investment any dentist can make is a home for himself and his family. As a young man this motto was held up to me: It is cheaper to rent than it is to buy a home. That is bad teaching. The average dentist, who owns anything at all, usually owns his own home. When you get that home paid for you are a better citizen than you were when you rented a home.

Dr. Gilmer did not make so serious an error as you seemed to think when he said that Dr. Blair saved more than he made. (Laughter.) Of course he saved more than he made, because the interest of his money was making money for him all the time. And as Dr. Gilmer said, do you realize what interest is? You certainly realize when you are paying it out, and so you must realize what it means when it is coming in to you. I believe the average dentist makes more money than has been indicated tonight, but if there is anything in which the dentist does make a mistake it is in his investments. The promoter, the mining shark, the stock broker, all look upon the professional man as an easy mark, and they do not look in vain.

There is a member of this society sitting here tonight who was offered a partnership in a broker's house, without putting a dollar into it, simply for the use of his influence with his dental friends to get them to invest their money in this brokerage business. That is something which should set us to thinking. The great lesson we are to learn from this paper is to save a little something, put it in a home, and when you get the home paid for, invest all the money you have to spare carefully and judiciously in other things. It is a hard thing to tell members of the dental profession how to invest their money, but it is something everyone should think about. When I am talking on this question I think of the young men because they are the ones to profit most by a discussion of the subject. I am hopeful that there will be a far less percentage in the years to come than in the past of old men practicing dentistry all their lives and dependent on others at the end of their many years of practice. I believe if the profession grows in that regard it will grow just as rapidly in a scientific sense. I believe that independence in a financial way makes a better and broader man. It makes him more efficient in every way. That is my conviction and I want once more to thank Dr. Blair for bringing this message to us. His paper is something that you and I will read after it has been printed with a great deal of benefit. As I have previously said, it has been one of the most inspiring papers I have ever listened to.

DR. G. W. DITTMAR:

There is very little that I can add to what has been so well said. Dr. Blair's presentation was a masterpiece and the discussion has been good.

Dr. Bentley spoke of four means by which the eighty-two per cent may be reached, viz: by lectures, pamphlets, the press and examination of the teeth of school children; to these I would add one other and that is the educating of our patients, that they in turn may educate others. Much could be accomplished through this source, if the dentist did his duty toward the patients in his care, telling them of the causes for many of the diseased conditions of the mouth and how they may be prevented or remedied.

Dr. Bentley spoke of success and stated that the average dentist, to be successful, must have personality and professional efficiency. To these, I think we may add what Dr. Buckley said: "He must be honest," and also what Dr. Arnold referred to: "He must be ethical."

To these I would add that he must love his profession and be not afraid of work. He should become a better dentist each day. If so, he has a right to place a higher value on his services and in justice to himself demand better fees.

DR. F. E. ROACH:

It would be presumptuous on my part to attempt a discussion of Dr. Blair's paper. I would not attempt it because I feel wholly incompetent to do so, but I do think I can offer as good a discussion as has been offered this evening by referring you to an article that appeared in the December number of *The Fra,* by Elbert Hubbard. It would do every one of you good to read this article. It is indicative to my mind of the general movement that has been started by the public and the press in the education of the people upon dental subjects. I simply rise to call attention to this article. I know that this magazine is comparatively new and is probably not read by every one of you. I know that many of you have read this article and am sure that those of you who have not will find it well worth your while. It has made a deep impression upon me, as in this article Hubbard reflects the great work that Horace Fletcher has done and is doing. There is no question, as Dr. Bentley has pointed out, that Horace Fletcher has done much to educate the people upon the importance of the mastication of food, and if we are going to properly masticate our food we must have a good masticatory apparatus. It was my hope, when I heard Dr. Blair was going to read a paper on this subject before this society, that we would be instrumental in bringing here Elbert Hubbard and Horace Fletcher to discuss the paper. I believe that if we had had these two men here we would have had such a discussion as this paper deserves.

DR. B. J. CIGRAND:

Mr. President: Dr. Blair, just before reading his paper, asked if I would say a few words in discussing it. I have enjoyed the paper very much. I cannot help saying these words of appreciation, however, that in the last five years there have been a number of papers contributed on this very valuable and necessary subject, but I do not believe that the subject has ever been treated in such a generous manner as it was by Dr. Blair. I mean by generous manner this, that he did not abuse those who are still laboring in darkness, and when I say those who are still laboring in darkness I mean unethical dentists. I think he was generous to them. He was kind to them, and I think he treated the matter in a most ethical way, and while he said incidentally that it had been stated of him that he looked the clerical part, I think he not only looks it but he has acted it. I congratulate him on having covered this very delicate subject in a most ethical and gentlemanly way. The Chicago-Odontographic Society could do no greater thing for humanity and the profession than leading others out of darkness; and I would suggest that this particular paper be put up in a very attractive booklet form and mailed to every unethical dentist in the Mississippi valley. They would read it. They would study it, and after such consideration they will have seen the light, and once having seen the light, they would join us. There is only one way to have unethical men join us and that is by teaching them that they are wrong. We must be generous to them, and I am sure if we are generous to them and treat them properly they will be members of our society. Incidentally I have a poem which reflects the view Dr. Blair has given us tonight.

"There is so much bad in the best of us,
And so much good in the worst of us,
That it hardly behooves any of us
To talk about the rest of us."

If we are generous toward those who are still among the charlatans and contribute an evolution of ethics we will have done more good than any campaign we can possibly adopt. Avoiding a man, abusing a man does not win him to your cause.

Let me say also I was delighted to hear the arguments advanced by Dr. Bentley. This is such an important subject that I do not believe any dental student's curriculum is complete and perfect unless he has some knowledge of what he is going to be after he has been registered in a fraternity as a doctor of dental surgery. A large majority of our young men go wrong, both as to price and method of practice because of lack of knowledge on the subject. They do the best they can; they struggle along and finally find out that it is easier to join with those who apparently are advertising their methods than those who are quietly minding their business. I wish to emphasize the remarks and arguments of Dr. Bentley that this society cannot go out to the public and say we are here to raise our fees; that we are here for a selfish purpose of buying material things to improve our homes or to enjoy life. The world does not owe you a fine home nor a good span of horses. That is not what we are in dentistry for. Every man in this room who is serving his profession is in it because he loves the kind of work that it brings to him. I was delighted the other evening at the banquet in honor of Dr. Black, in which Dr. Black said "That while the old Indian thought I looked as though I was 110 years of age, I feel as young as I ever did, and I am not ready to retire." Why did he say he was not ready to retire? Because he loves his work and because he loves his profession, and those of us who are in the profession here tonight are those who love it, and if we love our profession it is not our aim to simply get higher fees. I say we are not here to merely seek the art of higher fees; I say that we have come together tonight to learn how to be of greater service to humanity and to pay our respects to a gentleman who has made himself in the community an honored citizen. Prove to the public that we are invaluable to them and it will quickly and gladly come to us. That is the argument; we are not here to give public lectures to the people of Chicago for the purpose only of having them come to our offices and extract their money, but for a broader and more humanitarian side—of helping them in their everyday lives and assuring them of a longer and more useful career. That is the reason I want to say that the argument is incorrect which offers a commercial side alone. We are not gathered for a selfish purpose. Ours is a labor of honor as well as a service of profit. We are here because we love our profession and contribute comfort and joy—hence we are needed public servants. We do not want to impose necessarily upon the public by exacting higher fees, but let us demand honest work and the world will pay. If we can impress the people that we love our profession and are consecrating ourselves to it I am sure the people will be with us and remunerate us in money and kindness.

Dr. Blair (closing the discussion):

It would be putting it mildly if I should say I am delighted with the kind and courteous reception I have met during the day in Chicago, and here tonight in this society. One of the best things in life is to have friends and to enjoy them. It is worth any man's time and trouble and effort if he has so conducted himself in his profession and so lived that his friends are glad to meet him. If I have lived up to that standard, as it has been spoken here tonight, I am thankful for it. Personally, I have regarded my life in a large measure as a failure. Probably it is a good thing to feel so. If a man has the courage to work on and yet is afraid he will not succeed, sometimes he succeeds better than those who are over-confident. In reference to our savings, let me say that distance often lends enchantment to the view. What little property I possess has been spoken of in terms far in excess of what I think of it. As glad as I am to have a few acres of land, I have not as much as I ought to have after thirty-four years of persistent toil. That is the point I am trying to impress upon the dental profession as represented by you here tonight. We are casting into the balance a wonderful amount of energy, of educational training, and of long service, and I contend that as good citizens and as faithful dentists we are entitled to a richer reward than we are receiving, and I also contend that when the public is brought face to face with the fact and given a clear conception of what we are doing and how invaluable we are to them they will accord to us that to which we are entitled. (Applause.) I believe one thing is being accomplished. Let me remind you of this fact. But a few years ago there was scarcely a man in the state of Illinois who would dare commit himself to writing, with the possibility of having printed, such thoughts as you are committing yourselves to here tonight. Men were afraid of their home surroundings and the effect it might have upon their practice, but this great profession of ours has grown with such strides that these things are ours by right, and they will grow with the rest of the growth of this profession. I hope Dr. Bentley is correct in saying the paper presented is fundamental. We may safely plead our cause before the people upon its merits. The dual life is one which promotes scientific attainment and at the same time grants to us proper business results, and I agree with Dr. Gilmer that they ought to be yoked together and go hand in hand from this time on. I would not have you think that I was painting a gloomy picture. You know it is the optimist who sees the doughnut and the pessimist who sees the hole. There is a future for all youg men who enter the profession who fit themselves for the work as they should do, and as Drs. Buckley and Cigrand and others have well said, we should give an honest service for an honest fee.

There is one thing I would impress upon the young men, namely, that when they leave college and have procured a license to practice dentistry, that they ought to be men of good habits; men who have been taught and who know that it is right to save part of their earnings from the beginning. The mistake that most of us make is waiting too late in life before doing so. I did it myself. If men live proper lives, if they are good citizens in the community they locate in, if they save, not niggardly, but wisely and positively a part of their earnings they will go on in time and reach that goal that is so much desired and which has been so eloquently spoken of by Dr. Johnson tonight. It was Edward Bellamy who, in his book entitled "Looking Backward," years ago said that he believed every man ought to be retired at fifty, and younger men ought to remain in the harness. That is not a bad thought. There ought to be rest for the older men and the younger ones given an opportunity. Some one has said that if every man would do his proper share of work in a very few hours each day, each citizen of the world doing his share, the whole work would be done. I believe there is reward for this proper living, for this proper training, for this proper service to the people who trust themselves to us. If I can say one thing to these young men, it is that if they live along these lines after a while they will grow to

> "Find tongues in trees, books in the running brooks,
> Sermons in stones and good in everything." (Applause.)

AMERICAN DENTAL SOCIETY OF EUROPE.

REPORT OF THE THIRTY-SEVENTH ANNUAL MEETING.

Held at the Hotel Continental, Paris, on Friday, March 25th to Monday, March 28th, inclusive, 1910.

DR. J. M. QUINTERO, President, in the Chair.

DISCUSSION OF THE PAPER BY DR. W. F. KELSEY, ON "HONEST DENTISTRY."

DR. W. SACHS, Berlin:

Said the question was one that interested him very greatly, because during the long time he had practised dentistry he had seen more poor and bad work than he had seen good work. The work he had seen during the last ten or fifteen years, however, had been much better, and he thought that was due to the fact of the influence of Societies such as the A. D. S. E upon the profession. He divided dentistry into three kinds: honest dentistry, performed by an honest man who tried to do the very best he possibly could for his patients, and who necessarily charged a fee that remunerated him for his work; secondly, what was called prophylactic dentistry—cements, porcelain, amalgam, platinum, a little clasp plate or bridge—performed by dentists who told the patients they had saved their lives, a class of dentists whose work if made public would lead a patient to say "Every dentist except my own should be in prison"; and the third class, dentistry performed by dentists who were divided between conscientiousness and wisdom, men who desired to do the best they possibly could for their patients, but who were so egotistic that they preferred to do the most agreeable and best paying work. If such a man could be educated and persuaded to do his very best for every case that came under his consideration his name would deserve to be written in letters of gold in the history of dentistry. It was desirable to get hold of such men, men who were doubtful as to what they should do, and endeavour to get them to conduct their profession honestly.

Dr. L. C. Bryan, Basel:

Said Dr. Kelsey had brought up many points of criticism, but a good deal depended upon the standard that was adopted. Some people were venturesome, some more confident of success in doing what another man would consider an absolute impossibility. There were two operations mentioned in the paper of which he himself had been guilty. One of them was sawing the alveolus to remove a tooth. That had been a very successful operation in his hands, and he had had great pleasure in adopting it and he believed he had regulated irregular teeth in some cases with a great deal of comfort to the patient. In 1891 he had a little patient from the Orphan Asylum and demonstrated to the members of the Society, who were meeting in Basel at that time, how the operation was performed. The patient was a boy of twelve, and under a local anesthetic he sawed through the alveolus without the boy showing the least sign of pain, and he brought out a cuspid which was erupting lingually and successfully brought it into line, the tooth requiring only to be bound into position in order to make a permanent success. In after years he found the tooth was quite satisfactory. It would be impossible in a poor patient, or even in a weathy patient sometimes, to bring out cuspids by the usual screw methods without a great deal of pain and loss of time on the part of the patient and tedious work on the part of the dentist. Such immediate regulation, however, was an operation which had to be used with great caution and only in certain cases. With regard to Dr. Kelsey's remarks as to attaching bridges on one post, he had in his own mouth a long bridge, running from the second bicuspid, with broad Ash teeth, representing almost the original chewing surface of his mouth, running right back to the third molar. That bridge was attached to the first bicuspid with a bar braced against a firm phalanx of teeth in front holding the bridge. When criticising other people regard should be paid to the standard such people might adopt. They knew well what they could do in certain lines. Too much belief should not be attached to the statements of patients with regard to what the dentist had done or had proposed to do. There were a great many honest, able, and conscientious dentists being slandered by patients who went about the country making absolutely false statements of their experience with certain dentists. Many dentists who were accused of doing certain things were absolutely without reproach in the matter; it was either a misunderstanding of the patient or a misrepresentation. Statements of patients indeed should be considered with great scepticism until the dentist's side of the case had been heard, especially if the patient had not paid his bill and had left no address as to where he could be found!

Dr. Kirk A. Davenport, London:

Said the subject dealt with in the paper brought to his mind the necessity of considering the patient. He had a feeling that one should always take into consideration the stamina of the patient and that a beautiful operation might exist with the greatest malpractice. For anyone to do a tedious, long operation on a weak anemic patient endangered the health of that patient. A question that had been in his mind for a long time was how far a dentist was justified in satisfying his own desires. All dentists had ideals as to what a beautiful operation consisted of, and sometimes in satisfying their own artistic tendencies they might possibly sacrifice the patient and also be ready to sacrifice the fee. It had been a maxim of his not to charge patients for operations that could have been performed more simply, *i. e.,* not to charge them for the extra decorative part of the work which was really done to please himself and which would give the patient no greater benefit than the simpler operation. Dr. Bryan's remarks had brought to his mind a case he had some years ago where he had removed a bridge and found that all the teeth were in a very bad state. There were four anchorages all of which had pyorrhea and were loose. He explained to the patient that it was almost necessary to have a plate, but the patient asked whether it would not be possible to put in a complete bridge. His answer was that he could put in a bridge on the four anchorages that would last for a little time, perhaps a year and a half, and the patient said he would be satisfied with that. The bridge was put in, and now, five years afterwards, it was as satisfactory as anything he had ever done, and he suggested to the patient the last time he saw him that he should charge a rent from now onwards. If a case of that kind should come into a dentist's hands from a patient who had not paid the fee, and it was examined, it would be probably said to be a case of gross malpractice. A little time ago he had seen one of the worst fitted bridges he ever had occasion to remove. As it came out, with its anchorages, he was about to tell the patient that the work had been very carelessly done, but instead of doing so asked how long the bridge had been in, and when the patient replied that it had been in for twelve years he told her it was a beautiful piece of work. It was very often possible in that way to discover that their brethren in the profession were not so dishonest as a glance at the work might lead one to think.

Dr. R. H. Portuondo, Madrid:

Thought Dr. Kelsey had forgotten to take into consideration the position of the patients. Dentists were one thing and patients another. In a great metropolis a patient might be seen once and never seen again, but in a small town the patients were seen continually and when anything was done that was not honest the dentist was ashamed of his work. That was the reason why in a small town a man who practised dentistry had to be honest with himself and be satisfied with the work he did for his patients, seeing that the patients came back to him every six months, or every year. When the patient returned in that way it was possible, if the dentist was ashamed of his work, that he might remove it, but such a thing could not happen in a practice where the patients never returned.

Dr. Kelsey, in reply, said that he might be wrong with regard to the cases of the lower teeth, but from the few cases he had seen he noticed that eventually they shook the tooth to which they were attached and he was convinced that after a certain number of years the bicuspids would be shaken out of their sockets. Whether they would remain long enough to repay for the risk was another question. When a man performed an operation in his own mouth there was no question about his being an honest operator. He himself had performed an honest operation in his own mouth recently. He took out a tooth with his thumb nail and found a small hole in it. The tooth had been retained for three or four years with a band round the neighbouring teeth. He took the tooth, rounded off the end, smoothed and filled the root, burnished the band on it and put the tooth back, and it was as comfortable and as functional as it was twenty years ago. That was an honest operation. With regard to Dr. Bryan, whether Dr. Bryan would consent to have a misplaced incisor advanced by his quick process or not he did not know.

Dr. Bryan:

Said he certainly would and should not have it done in any other way. It could be done within two minutes and was absolutely painless. When the Society was in Basel, just a few minutes before leaving by train, he regulated a bicuspid for his niece. Cocain was injected, the operation was performed within twenty minutes, and she came up to the station and had her dinner with the party. The attachment was very rapid; there was no congestion and no locking up of matter that would form an inflammatory process. The operation was self-draining and appeared to be an ideal one. It could not be used in nineteen cases out of twenty, but in the twentieth case it was of great advantage.

Dr. Kelsey:

Asked whether such teeth were always found with live pulp years afterwards.

Dr. L. C. Bryan:

Said there were accidents and troubles at first, but when experience was gained they ceased. When he first published his method he brought the tooth out, breaking the outer alveolar wall, which was very likely to remove the point of the root, but now he sawed through and brought the tooth into position and had the whole alveolus and all the living tissue together. There was just an interruption of the circulation at the saw cuts. It seemed a horrible operation, and in Basel he recollected that, much to his chagrin, the members took up a collection for the boy who had the operation performed!

DISCUSSION OF DR. WEBSTER'S PAPER "EMERGENCIES."

Dr. A. C. Hugenschmidt, Paris:

Expressed his appreciation of the carefully presented and highly interesting communication of Dr. Webster. He thought all the members would carry away with them many practical ideas on the way in which unexpected accidents of daily practice should be met, by having always at hand the clever collection of emergency medicines put together in the case Dr. Webster had brought forward. There were many varieties of emergencies the dentist should be prepared to meet in daily practice, amongst them syncope preceding or following an operation or preceding or following local anesthesia produced by cocain. Most of such syncopes were really not due to the drug itself but to the great fear which the patient might have of the operation, or in case of cocain or such allied drugs to the fact that the patients had been told of possible incidents occurring when the drug was administered. As an example, he mentioned the following fact. When acting as assistant to Dr. Evans he was called by him to inject cocain for an elderly patient, and as soon as he saw her he suspected she was suffering from some hidden tumour and refused to inject the drug. The patient stated that her physician told her that cocain was dangerous and that she would faint or even die, but she insisted upon having it. He told her that if she would take the responsibility of what might happen he would make the injection. She agreed and he took a new syringe with ten drops of distilled water and injected the gums of the lady. A few minutes after, the operation was performed painlessly and the patient extolled the wonderful property of the drug. Soon afterwards, however, she cried out, "Oh what is that? I am dying," and fell back unconscious. No pulse was to be felt and he could not hear the beating of the heart. Fortunately he had with him nitrite of amyl which he gave the patient to inhale and so brought her round after about an hour. Such attacks he thought could be prevented by handling the patients in a certain way. For instance, when he injected novocain he began by inserting the needle into the gums and waited about a minute before pushing the piston, talking to the patient, and if no symptoms presented themselves he made the injection. In that way he had not had a disagreeable affair for many years. If the patient became nervous signs of it would certainly appear during that minute and then the needle could be immediately withdrawn and the patient told in a determined tone that the operation would not be done on that day, but would be postponed.

To prevent syncope which occurred before or after a local surgical operation in the mouth it was his custom never to tell the patient that he was going to operate at the next sitting. He always told them it would have to be done in two appointments. He informed them that the first time they came he should do very little, only just what was preparatory to the more serious affair. Therefore the patient came without fear and the dentist had under his hands a perfect patient who was not at all nervous and instead of hindering the dentist helped him. When the operation was over the patient was then told that the thing was finished, and went away calling blessings upon the operator. After finishing an extraction if the patient was very nervous and pale and ready to faint she should not be told the operation was over, but on the contrary she should be told there would be a little pain so as to force her to protest and discuss the matter, and in that way a condition of cerebral anemia might be changed into one of activity of the cerebral circulation which would prevent the patient from fainting and restore the cerebral equilibrium.

Dr. V. de Trey, Basel:

Said he had a case three years ago of cocain injection when he was away upon his vacation. A patient in the hotel called for his services in the extraction of a tooth, and he injected a 1 per cent. solution of cocain. The patient was a Greek, who did not appear to be at all a weak man. He gave about one-third of the syringe and then the man turned pale and green and said he was dying. He jumped up, tore his shirt, and proceeded to make a testamentary disposition. He emptied a jug of water on the patient's face and then laid him on the floor. There was no sign of life. Fortunately he had with him some nitrite of amyl and he gave the patient one drop on the tongue. He did not know what the effect would be but he tried it. The man jumped up and said, "Give me the bottle." He refused and laid the patient on the floor again and called in a medical man. When the medical man arrived the patient was in the street shouting "I am dying, but that is not his fault." A well-known professor of surgery told him afterwards it was the first time he had heard of nitrite of amyl having been given, and he said he would see what the effects were. The case was very strongly impressed upon his mind as he had to give up his room to the patient and he had a terrible time during the three nights that followed, continually fanning him, because every time the fan stopped the patient shouted that he was dying and asked for air. The nitrite of amyl brought about a slight irritation of the stomach and a little ulceration, but that went away after a week or so.

Mr. George B. Hayes, Paris:

Felicitated the essayist not only on the choice of his subject but on the concise and practical manner in which he had dealt with it. Papers which came before the American Dental Society of Europe might be divided into three classes: those which dealt with something which was absolutely new and original, a discovery of the reader, which he wished to give to the world; secondly, those which gave a new aspect to a matter already known; and thirdly, papers dealing with matters which although already classical were yet important as recalling to mind things that were liable to become forgotten and neglected. The present paper was important not only for the new teaching it contained but for bringing back to the memory forgotten things, and he thought the members were sincerely indebted to the Author.

Dr. C. E. Luce, Stuttgart:

Said it was a good thing in life to be prepared for emergencies in all directions and he thought the members should be grateful to Dr. Hugenschmidt for his very good advice in the matter of cocain. He was a great believer in suggestion applied to a patient to ensure confidence. If it was said to the patient, "I am not going to do this", and then the operation was proceeded with the confidence of the patient was very apt to be lost. The one important thing for the little medicine box Dr. Webster had shown was a good stock of ability to obtain and keep the confidence of a patient. He had in mind two incidents that had occurred in connection with his own practice. The first was that of a little boy whose first upper molar he had been attending to and had used a little wad of paper placed over the salivary duct to hold back the flow of saliva, with the result that the gland had become engorged. The fact was not noticed for a few moments, and when the operation was finished he told the mother that the boy had mumps and she said she would take him to the doctor at once. Then it occurred to him that possibly the duct had closed up, and on opening it by a very simple means the saliva came out in a great quantity. To know what to do in an emergency of that kind was very simple, and above all the confidence of the patient must be obtained by simply saying, "It is nothing." The other case that was rather alarming was the following: He was working at the time on a lower third molar when the right angled hand-pieces were not as perfect as they were now, and at an inopportune moment the spring broke and the bur fell out onto the base of the tongue. He immediately threw the patient's head forward and told him to spit out and he thought he heard the little instrument fall into the cuspadore. Nothing was said about it to the patient, who went home, and after he had left the cuspadore, which was an ordinary one, was examined, and no bur was found. Therefore he concluded the patient had swallowed it. Naturally he felt rather anxious, believing that some intestinal irritation might be caused, and he considered very carefully whether he should tell the patient or let the matter go. It was well known that Nature sometimes took very kindly to sharp surfaces, covering them up and passing them away without causing trouble, and he therefore let the matter go. Two or three days afterward the patient did not fill his appointment and he called at his house and heard he was not in; and to make a long story short he never told the patient anything about it and the patient never said a word to him. In another case, when taking a plaster impression for a bridge which included the third molar a bit of plaster fell on the patient's tongue and he swallowed it. He assured the patient that it would cause him no trouble and the plaster agreed with him perfectly. Therefore the principal point and one of more advantage than all antidotes was a good stock of ability to calm a patient, but he questioned whether it was advisable in all cases to quiet patients by not telling them the exact truth.

Dr. C. A. Abbot, Berlin:

Said there was no member of the Society who would not carefully examine his little medicine box, if he had got one, and if he had not he would get one pretty soon, because it might be the means of saving life. He had been warned by one or two physicians not to use too much ammonia in cases of fainting as it might cause asphyxia. He suggested that it might also be a good idea to have a little extract of coffee in the box as it was an excellent thing after cocain if any trouble should arise. A visitor to a show once asked the proprietor what steps he would take if a tiger escaped, and he said he would take pretty long ones. If anything should happen all that could be done should be done, but very long steps should be taken to try and obtain a doctor as soon as possible.

Dr. Kirk A. Davenport, London:

Said he had the pleasure of reading Dr. Webster's able remarks and pointed out to him that it was quite impossible to discuss the paper because he had said everything so well that there was nothing left to say. All dentists had had experience of emergencies but he was pleased to say that none of his own had been serious. He had, however, a remarkable case a short time back in connection with the injection of a local anesthetic for the preparation of cavities in the worst patient he had ever experienced. The patient did not altogether faint but lay down and had to have his clothes loosened and his boots taken off and was certainly very much disturbed. It was three quarters of an hour before he was able to go and as he left he did not seem to be at all disturbed himself but observed, "I think that remedy you used is something very remarkable; I feel certain that if you had not used that I should have fainted." Then it seemed to dawn upon him (Dr. Davenport) that he was accustomed to faint. He had another patient that he had injected on various occasions for the excavation of pulp and general treatment with great success, but one day there were very marked disturbances following the injection. The heart was beating at a tremendous rate, but the patient said she should be all right in a moment, and she was, and the operation was performed. Her explanation was that she had had a very heavy luncheon, probably with champagne, and she attributed the difference in the action of the injection to its being made immediately after a meal. He had thought he would not inject after a heavy meal in future. One addition he wished to make to the medicine case was ichthyargol, a combination of ichthyol and argol. The proportion in which he used it was half a grain of the powder to half an ounce of distilled water and half an ounce of glycerin. The remedy gave a very weak solution containing nitrate of silver ,and it could be used as a remedy for almost all troubles, and was particularly useful for the surface of mucous membrane. It was recommended in America by rhinologists after operations and was certainly useful in preventing cold following the opening of the nasal passages. He had been told by a physician that such a remedy might well be employed to prevent auto-intoxication from infected tonsils; and as he had had a serious case of that sort this summer, through, he believed, lack of care at an early stage, it was a pity the remedy was not known to him then. It was also exceedingly good in all gum treatment. There was no discoloration whatever. It was a little sweet tasting and he prescribed it to patients, allowing them to have a small quantity of the necessary strength, instructing them to apply it on a piece of cotton wool to all the places that troubled them. It was also a very fine remedy for hemorrhoids, though that probably was a little far off dental treatment. He had had the pleasure last winter of being in Grindelwald, and had a little bottle of the remedy with him and had an opportunity of using it upon one of Dr. Webster's patients with the best results.

Dr. H. W. C. Bodecker, Berlin:

Said in an emergency the dentist was entirely thrown upon his own resources. When a thing occurred frequently the dealing with it became routine matter and the thing was done mechanically. If the dentist had a case such as had been described in the Cabinet, and had carefully overhauled it on many occasions, when the emergency arose the subsconscious memory would recall everything in a flash and one could act without figuring out in detail what one required to do. He believed in that way that the medicine case was not only of benefit to patients but by its actual presence would be a medicine for the man who was going to use it. To the case he thought should be added one or two instruments, although dentists were not often called upon to do anything in that way. One instrument he would add to the case would be laryngeal forceps, although he did not advocate that everybody as soon as anything dropped into the neighborhood of the larynx should go searching round with laryngeal forceps as that would probably do more harm than good; but during extraction sometimes a tooth dropped down and laryngeal forceps were of value in getting it out. In most cases the operator would make a hurried call for a surgeon, but he might have sufficient nerve to put the patient on the table, draw back his head and treat the case himself. The patient should be laid on the table and his head held back and the throat kept open to enable him to breathe until the surgeon arrived to do the regular operation.

Dr. A. C. Hugenschmidt, Paris:

Said he once assisted in an accident that occurred in taking out the upper third molar when the tooth fell into the larynx and there were immediate symptoms of suffocation. The question of immediately opening the trachea was brought up, but before that was done, while the assistant went for the operating surgeon, the patient was seized by the feet and shaken two or three times head downwards and the tooth came out. Foreign bodies in the larynx would come out very easily sometimes in that way.

Dr. G. O. Webster:

In replying to the discussion, asked how many dentists were familiar enough with the operation to be able to attempt to induce artificial respiration. He realised that in many ways the paper was not one easily discussed, and he was very pleased that so many and such kindly things had been said. It had occurred to him, however, when writing it, that it might bring up personal experience, and from personal experience a great deal might be learnt. With regard to the suggestion of Dr. Hugenschmidt on the use of auto-suggestion or hypnotism, what the dentist had to do was to be above all things thoroughly honest with the patient. It was necessary to be very guarded there. He was, in fact, thoroughly in sympathy with the old saying that honesty was the best policy. Autosuggestion or any means taken to allay the fear of the patient was not an effective remedy against idiosyncracies. That was the important thing in his mind in the use of cocain salts, and in nearly every case where he had occasion to use it, unless he found that the patient had had it used before, he made a very small injection and waited a little time to see what the effect would be. There were cases so extremely responsive that he had known a one per cent. solution, simply wiped over the palate, to create very serious symptoms. It seemed to him it was a good plan to be a little sure of the ground and to make haste slowly. He would certainly advise the employment of a physician in all cases where there was any possible danger of trouble with which a physician should deal, but he recalled to mind very distinctly one of his own experiences when a physican was called in in a serious case of a surgical operation on a lower jaw and arrived with nothing but a bottle of chloroform. In that state of affairs he (Dr. Webster) absolutely refused to operate and used some very strong language and expected to incur the lasting enmity of that physician, but he turned out to be the best friend he ever had. With regard to nitrite of amyl, it was a dangerous and powerful remedy, and in its exhibition extreme caution should be used. In a dose of 3 or 4 minims, simply breaking a small ampule was fairly safe. The secondary effect of the drug was extreme depression, and to depend upon the nitrite of amyl for resuscitation and to go no further was a great mistake; a general stimulant ought always to follow. With regard to ammonia being an irritant with possibly unpleasant consequences he took it for granted Dr. Abbot referred to aqua ammonia. There was a little danger if that was given in a very strong dose without the admission of a good deal of air, the danger that there would be a sort of spasm of the pharynx which would prove extremely unpleasant. He did not think, however, as a rule, if the drug was used with caution there was very much danger. When he referred to the use of ammonia in the paper he referred to the aromatic spirits of ammonia for internal use and not to the volatile salt. With regard to the additions suggested to the case no doubt each man would adapt the case to his individual needs. The suggestions that had been made were very good and very acceptable. So far as provisional tracheotomy was concerned, those who had to do with the late Dr. Garrison would remember that one of the things he insisted upon was that every student should know how to perform provisional tracheotomy. Although the operation seemed a little formidable it was not really so.

Dr. W. J. Younger, Paris:

Said he always had a syringe charged with caffiene so that in case of any accident under cocain he had a remedy at hand. Fortunately he had not been called upon to use it, but he never neglected to provide it, and as a rule when a thing was provided for it did not happen.

ILLINOIS STATE DENTAL SOCIETY.

FORTY-SIXTH ANNUAL MEETING.

SPRINGFIELD, MAY 17-20, 1910.

DISCUSSION OF THE PRESIDENT'S ADDRESS.

Dr. J. W. Cormany, of Mount Carrol:

The address of our worthy president is one full of encouragement to the incoming members of this Society. It shows what we have been doing, what we are doing and what we propose to do, and I thank him for his good talk.

Few dentists are making the most of their privileges. The dentist is a money-maker and a money-spender, and instead of using money for the best improvement of mind and body, it is wasted, not so much in riotous living as in years gone by (for, thank God, they have cut that out), but the desire for the good time is irresistible. The auto is so tempting on pleasant days that too many, I fear, are neglecting the business that brings the living. It makes them restless, anxious for the ride, and off they go before the closing hour. I speak knowingly when I say your patients do not like this and will not stand for it.

We read of the older dentists who burned the midnight oil, worked early and late, searching for the causes of the many ills the teeth are heir to; for a better way to do this, an easier way to do that. For whose benefit, may I ask? Yours, mine, or their own? We are reaping the reward of their self-sacrifice and self-denial. Are we enjoying it? "Bet your life." Do we appreciate it? Well, "I guess yes." We raise our hands and swing our hats and yell "Hurray" for the grand old men that brought us so many blessings.

Do you, young man, want the next generation of dentists to swing their hats and yell for you? Then get to work in research and make yourself famous.

As to the education of the public concerning the teeth, it's an up-hill problem, as Dr. W. A. Johnston of Peoria told us at Cairo several years ago. "People seek the services of the dentist for three reasons: pride, prudence and pain; and it is the latter that brings them first. It is then the first time the dentist has a chance to educate them. I believe the public school is the place for this education; let the instruction be placed in the text-books and be a part of the regular study. The American people are on hand to a man for the free show, and I see a mental picture of these people wending their way to the free dental office there to be made whole again by the proper repair of their teeth. Mix a little pride and prudence into their makeup and they will be handsomer folks to look at.

Get out and mix in the civic affairs of the community? Yes, sure. I'm a dandy mixer. I thought so much of myself along this line once that I ran for mayor of our town and got beaten so badly I've been out of civic affairs ever since; but we must take a part, we must at least vote.

This is the way it looks to me: Dentistry first, society second, municipal interests third, affairs of the world and the world's work fourth. Dentistry is your profession. Take care of your local society, your state society and, if you can enjoy it, the national society. Attention to all these will make you a well-rounded professional man and a gentleman of affairs.

I cannot close without reference to this sentence: "If the present good fellowship continues and spreads wider." There is no if about our good fellowship. We are good fellows now, have been, and ever will be. We get better and better along those lines and more considerate of each other.

Loyalty to our society never wavers; we all stand shoulder to shoulder for its maintenance and it shall continue until the last trump shall sound.

Love and affection for one another grows and permeates us individually and collectively. Why, it is full grown now!

Dr. C. N. Johnson, Chicago:

Mr. President—The President has given us today something to think about, which I believe merits our hearty co-operation. One thing he mentioned leads me to make an announcement. He mentioned the Miller Memorial Fund. I believe the profession in this country should contribute to that fund. He did not mention another Miller Memorial Fund. The one to which he referred is an American fund for an American Memorial. There was inaugurated some time ago by the International Dental Federation the Miller Fund for the purpose of encouraging original research in our profession, and it gives me pleasure to announce that the first medal awarded by that Federation for the greatest scientific advancement in dentistry by any one man during the past year was recently awarded to our own member, Dr. G. V. Black, of Chicago.

Now, sir, it seems to me that it would be a very proper and graceful thing on the part of the American profession to rally to the support of that fund. Up to the present time our country has not been prominent in that contribution. Other countries have contributed more than ours. We need to be educated as to the character and ultimate purpose of that fund in order to make a contribution that will compare favorably with the other countries of the world.

Dr. Allen referred to a matter that we have heard of many times, the ascendency of this Society. He quoted one of the most magnificent men of the East, who stated years ago that this was the very best State Society in existence. I, as a member of this Society, would be the last one to throw any doubt on that statement, because I am intensely proud of the Society, but there is one thing we must remember: we will never keep our Society up to the highest pinnacle by merely making that statement. There is a dental activity today among other state societies that is going to make you and me open our eyes, and if we keep our Society in the ascendency we will have to work harder than we have ever done in the past. This is a very favorable thing, however, and the fact that other societies are emulating this Society is something to encourage us. It is something that every one should remember, and do his duty in the post-graduate work, and each must do his duty at all times if we are going to make the work of this Society more efficient than it has been. Unless we do make it more efficient this Society will no longer be considered the greatest state society. I know something of the activities of other state societies. It is to me a great inspiration to know that the other states are awakening, and there is an activity in dental thought that has never before been exhibited.

In all these things that the President has mentioned there is hope for us. Education, I believe, today is in the air, and all of these activities are going to demand of you and me our very best energies if we live up to the highest possibilities of our profession.

Dr. J. N. Crouse:

Mr. President—I take a different view from most of the men in the dental profession as to the qualifications of the dentist. If you were to fill up the colleges with the graduates of universities, and nothing else, we would have an almighty poor lot of dentists. If I were going to make a rule I would require every man who entered a dental college to go through a preliminary course to see whether he is fit to be a dentist. It is a lamentable thing, when we think of it, that half the men who graduate from dental colleges do not remain in practice a year and a half after they graduate. They have to go into something else. It may be a little better now, but five years ago I could have sworn to that statement, because I kept tab of every graduate. The last five years I have quit doing it. At that time half of the graduates failed as practitioners within two years. Therefore, I would rather take a boy who has been a bootblack, or a newsboy, or anything where he had to earn a living, and develop ability to do business, and who possessed the natural qualifications which a dentist ought to have. If I could go back forty-six years and start again I would plan to open an office and employ mechanical men with ability to manipulate, if they did not have the other qualifications that a dentist ought to have. I think a dentist ought to have better qualifications in all lines than men in any other line of business. He must have judgment and manipulative ability. He must have gumption. Do you know what gumption is? It is the ability to get compensation for what you do. (Laughter.) Then, if the dentist stands up and works eight hours a day he is not going to study very much; and he is not going to do very much original research if he has to practice dentistry for a living. When you come down to the qualifications of the dentist, it is a serious matter. There is not one easy operation. There is not anything that a dentist does if he does it well, that he does not have to put thought into, and thoroughness. He ought to put integrity into it, too. It is time that we revolutionize our education, and our plan of accepting students, and I am not sure but that the plan of practice will be revolutionized. The man who has ability enough to know what ought to be done could oversee a number of men in carrying out operations, and give the community decent service at a compensation that a competent man cannot afford. Good dentistry is too expensive for the community at large to pay for, so they don't get it. The dentists are chumps. I know more about this now than I did a few years ago, before I got into the manufacturing business. The dental supply people say that they can sell anything to dentists, whether it is good or not. This remark grew out of a desire to have amalgam that could be sold for $2 instead of $3. I said that the amalgam wouldn't be any good. They said it wouldn't make any difference; that if it were cheap they could sell it. The consequence is that one or two concerns I know of are manufacturing an alloy that is not worth a cuss, and yet we are talking about educating the public to have their teeth filled. By whom? By a class of men who don't know anything.

Dr. Don M. Gallie:

Mr. President—I do not exactly agree with the President in what he says regarding the present status of the profession as scientific men. If we read the literature, and remember how many good dental journals we have, it is evidence that there must be readers for these journals, and the class of articles we see and read every month is such that we must conclude the dental profession is doing its share towards dental research work. Dental literature today is the best we have ever had. I am most optimistic in regard to the question of dental research and scientific work by members of the profession.

I was most interested in what Dr. Allen said in regard to the children of this age. We are, I believe, just witnessing the dawn of the greatest career and activity of the dental profession. Our time has come. While the last century may have been the century of medicine, I believe that this century is the dentist's century. It is up to the men of this State Society and other state societies to take advantage of it. I can see that in the very near future the dental profession will come into its own. We have to do our share and be on the alert, because, as Dr. Johnson says, we hear from Ohio, Pennsylvania, Kansas, Missouri and other states that they are setting a pace for us.

I have the pleasure of occupying an office with a leading member of the Health Department of the City of Chicago. He came in the other day after having had a meeting with his associates in regard to fighting diseases among school children, such as measles and diphtheria, and he said: "Dr. Gallie, we are doing great things under the guidance of our efficient chief, Dr. Evans. We are able to combat the diseases of children, but there is one thing that baffles us, and we are powerless because we are not getting assistance, and that is with reference to the condition of children's mouths. It is up to you dentists to do your share, and if we are able to combat the diseased conditions of children's mouths, it will be simple work to battle with diphtheria and other diseases." The Health Department is extending to us an invitation to join them in this great work, and I am sure there is a field there that will give us a reputation. So I am optimistic, and I believe the young men who are going out today will be inspired with a desire and ambition to do the things expected of them.

Dr. C. R. E. Koch, of Chicago:

I am probably the oldest man in this Society next to Dr. Crouse. We have been leaders in the advancement of dental progress, and I am very glad to hear from Dr. Johnson that other societies are pushing up in line to be abreast of us, and I am glad that the reputation and history that this Society has made are now in good keeping, and those in charge of the line will see that it is kept always in advance.

With reference to the matter of dental school education I notice that our worthy President touched upon that subject rather gingerly, and referred with a sort of apology to the fact that Minnesota State Society proposes to ask for a law requiring that the applicants for admission to dental schools should have at least one year of collegiate work. I do not believe the time for such advancement has yet come. Illinois in that respect, as in all others, has always been a leader. The Chicago schools six years ago took the position, and gave notice to the country that in 1906 they would insist that no student would be received who had not completed a high school course, either in a high school certified by the proper diploma, or in an irregular way, which must be certified to by an officer of the state, not county or city. That position was taken at a great financial loss to the schools, but with the view of elevating the standard of the dental profession, and every one of you now rejoices to see that all the other schools in the country have accepted that standard, beginning with next year.

You may ask why do I think it is not wise to go higher. Simply for this reason, that the demand for dentists is greater than the supply. That may not be accepted by most of you, but I can assure you it is a fact that the dental schools under the present arrangement are not able to educate a sufficient number of dentists to supply the need. We, who have charge of that matter in the various schools are constantly receiving letters from the smaller communities telling us that they have such a town, and there is no dentist nearer than ten or twelve miles, and asking us to send them a dentist. So long as that condition exists it would be absolutely harmful to the people to insist that a higher standard should be required. In the interest of the people, as well as the dental profession, I should oppose the proposition of establishing at this time, and for some years to come, a higher educational standard.

Referring to what my friend, Dr. Crouse, said, I beg leave to differ with him. It is true that in the past many men with no education have made a great success in many callings, including that of dentistry. I stand here as one who was deficient in that respect. I have made something of a success at a great expense of time and labor, but I am quite sure that had my preparation been different I would have contributed more to the dental profession, and to my fellow men. I agree fully with Dr. Crouse that a man should not be made a dentist who does not develop the proper qualifications in school, but I believe there is no better place in the world to determine that matter. What is the result of school experience? The freshman class begins with 100, we will say. Before the end of the year, by the process of elimination, it has usually lost from 20 to 30 per cent. The weeding out process begins the first year, and while it is true that some men go through the three years who perhaps ought not to do so, that is an exception. The time was when dental schools took everybody who had the money, without respect to qualifications. They have frequently spoiled a good farmer or blacksmith and made a poor dentist, and that is the class of men that Dr. Crouse undoubtedly referred to. I am an optimist in regard to the evolution of dental education, and the dental schools, supported by the dental profession, are making progress right along. We are educating collectively a better set of dentists than we did in the past, and I am sure that all of those who are within the hearing of my voice, and who are at present connected with dental schools, will support the proposition when I tell you that we are aiming at higher things all the time. The time has not yet come when we are satisfied with our work, and when that time comes it will be time to turn up our toes to the daisies.

Dr. J. P. Buckley, of Chicago:

I was especially pleased with this magnificent address of our President. I knew that Dr. Allen could make the address which he delivered because I have known him ever since I have been in the profession.

As a member of the Post-Graduate Committee, I was indeed sorry to hear that so little interest has been shown in the post-graduate work by the members of the component societies of our State Society, because I know that all over this country the members of the state societies are focusing their eyes upon Illinois, and one of the things they think Illinois is doing for the benefit of the profession at large is this post-graduate course study work. If the members of our societies do not appreciate that, as it is thought in other states that we are appreciating it, I say again, that I am disappointed, and am somewhat discouraged in having taken an interest in that work.

Dr. C. E. Bentley, of Chicago:

We all know Dr. Crouse does not mean all he says. He is here for sensational purposes. We all love him, but none of us take him very seriously.

Now, Mr. President and gentlemen, it is not my province to speak of dental education, but I do think that the dental education that is being given to students in this country today is equivalent to the demand and necessities. Dental education is all that we can possibly make it. Revolutionary methods will amount to nothing, for a reaction would follow, but dental education through evolutionary methods will be permanent. I believe we are passing through an evolutionary movement, and towards the good and not the bad. I believe that we should constantly insist that the standard of education be raised, for if our profession is to rise to the dignity we dream of and wish for we must have men whose minds have been trained. You cannot take raw material and engraft upon it the requirements of our present curriculum. They must have trained minds to absorb the tenets of their education. Therefore I, for one, stand for a higher grade of preparation for our students. Dr. Crouse says he would teach men to do. The very essential characteristic of education today is not to produce men with a polished top-knot, but to teach men to do, to bring out their essential potentialities. That is what we want.

I am very glad that Dr. Johnson sounded the note of warning with reference to the danger of self-laudation. It is true that our Society has grown immeasurably, and we have accomplished great things. It is true that our achievements are many, but, gentlemen, when we commence to pat ourselves on the back we gradually drift into inertia. In all history we find that to be true. Whenever we are self-satisfied we are on the road to degeneration.

I, too, am familiar with the activities of other states. No longer ago than last February I visited Iowa, and I was surprised at the scientific activity of the men there. They have congregated in groups and study clubs, and are studying pathology, anatomy and physiological phenomena, and they are doing a great deal more than we are doing. I want to tell you that the study clubs of Iowa have the study clubs of Illinois beat a mile. Excuse the slang. We must not be self-satisfied. We are great in numbers, but we must also be great in activity.

There is no subject in the President's address which so greatly appealed to me as that part of it which referred to education of the public, and the needs of the public in that particular line, as well as the education of the children in the public schools. Gentlemen, this idea is epidemic. In New York the other day there was a great gathering, in which there were speakers preaching this gospel. In Rochester, N. Y., there has been a splendid hospital erected for the purpose, and throughout the country, especially in the East, are they active along these lines; but mark you, the thing that has brought this about has not been the dentists themselves. It has been brought about through other influences. These forces have been created by the Associated Bureau of Charities and by philanthropic organizations, and in some instances by the medical profession, and the great interest that has been focused upon this particular thing has been due to Horace Fletcher, and he is not a dentist. It behooves us, therefore, to get in line with this enthusiasm and profit by it.

At this meeting there will be placed in your hands a pamphlet gotten out by the Educational Committee for this purpose, and I trust this enthusiasm that has been engendered here will be widespread, and that we will go home with the idea of doing something for our civic influence as well as our professional worth.

Dr. Arthur D. Black, of Chicago:

From some of the things that have been said today I have wondered if our friend who invoked the Divine blessing has not questioned whether he would not better have called on the other fellow to take care of us. I would remind him that we talk about some things in our society meetings that we would not perhaps talk about so loudly to the general public. This is as it should be, because if we were satisfied with the progress already made we would cease to make progress.

I would not agree with the estimate made by the President in his excellent address, regarding the work of the Post-Graduate Study Course, putting it on the basis of the replies which he has received in his communications. The fact that some secretaries fail in their duty to reply to his letter does not necessarily indicate that that society has not done some work, nor does it indicate that some individual members have not done a whole lot of reading that they have said nothing about.

As Chairman of the Post-Graduate Course committee I cannot help referring to this phase of the work of this Society. I will call your attention to the fact that this course has attracted enough attention outside of the State of Illinois so that we are sending monthly bulletins to probably half the states of the union, and to a great many men abroad. These men are sending for and paying for our bulletin in order to get these reports. If there are that many men outside the State of Illinois who have gone to that trouble and expense, it would not seem likely that the men of this state have gone to sleep; on the other hand, we ought not to be foolish enough to think we can inaugurate a post-graduate study course and have all the dentists of this state enthusiastic about it in one or two years, because it is too big a proposition. The editors of many of our journals have been good enough to say that they believe this has been the greatest educational work ever undertaken in dentistry. I do not know whether that is true or not, but I know it is attracting a good deal of attention all over the country, and I know a few of our local societies are doing a splendid work. If we have only gotten five societies to do good work I believe we have done pretty well, but I believe we have done more than that. The dental profession has been spending a lot of money for dental journals, and they are not throwing all that away. I think that what we lack more than anything else is systematic reading, and that is the thing that the Post-Graduate Course is going to give us. It is going to take us five years to get this course going the way it ought to go. To my mind there are two great works before this Society that should occupy our attention more prominently than anything else for the next two years, and those two things go hand in hand. One is the pushing of the Post-Graduate Course of study, by which we, as dentists will improve ourselves, and the other the pushing of the public dental education proposition, by which we will at the same time teach people to take advantage of our services.

Who has brought about this matter of the examination of school children's teeth? Dr. Bentley says it is the medical profession, and Horace Fletcher, and other things. I would like to know where those men got their start? They got it from the dental profession. We have done that work. Sometimes there will be a few fellows who will do a lot of talking without doing very much work, and there has been a great deal of that going on in connection with the matter of public education. On the other hand, there will be a group of men who will do that work slowly, and without saying very much about it. Those two things must go together. There is need of teaching the public to take greater advantage of dental work, and to give them dental work which will be satisfactory, and prove to them that it is a good thing. There is no need to teach the public to take care of their teeth, and then do work that is not satisfactory. We must give the public work that will show that we are making good.

Rev. S. H. Bowyer, of Springfield:

This is more fun than I have had in six months. I have enjoyed every minute of this session, and I am sure my digestion will be better as a result of it. It reminded me somewhat of an old-fashioned covenant meeting. I don't suppose you know what that was. The first thing they would do in this old covenant meeting would be to confess their sins. Then the tide would rise a little more, and more, until, before the thing closed they would have a "Glory Hallelujah" time. That seems to have been the route you have followed here today. I have enjoyed your confessions. One of the first things preachers do when they come to their state conventions is to have a time like this. I enjoyed what this brother said thoroughly, and I could see that he was at one end of the rope, and somebody else at the other end; but they will get together and make the circle, and the thing will be complete, mingling common sense with practical work, which will make better men everywhere.

I have been saying to myself, after all, how is this thing related to me? Here it is. I have thought it all out. I am going to have a dentist on my board of deacons to examine the fellows coming into the church. How are a fellow's teeth related to his spiritual well-being? If he hasn't good teeth he will have bad digestion. If he has bad digestion he will have a bad temper. Of course, if he has a bad disposition he is at sword's point with everybody all the time. He is liver-colored, and discourages everybody else. So, I am going to have a dentist look into every fellow's mouth; then, we are going further and recommend, as a further qualification for membership, that he shall visit a dentist and have his teeth fixed all right, and that will change his whole nature.

I am delighted that you are here in Springfield. I know you are welcome. I want to give you my welcome on behalf of the ministers of the city.

Dr. J. G. Reid, of Chicago:

A little incident occurred in my practice, and the minister's address brought it to my mind. I was working recently for a young lady who is employed in a large publishing house in Chicago. I was trying to tell her something about caring for the teeth, and, by the way, she has very nice teeth, and takes great pride in them. She said one day to me: "I have something to tell you, Dr. Reid. My boss was advertising for a stenographer, and he had quite a number of replies. The applicants were ushered in one at a time, and were given a test to ascertain their qualifications. Finally the fourth one presented herself, and went through the test. The manager said, 'I guess I will draw this to a close today.' The young lady went out. All of the tests were excellent, and he said to me, 'I would like to have that last one as an employe, but I can't have her in my office.' I said, 'Why not?' He said, 'I can't stand her teeth.' " There is an instance where the services of a most valuable person were lost simply because she did not take care of her teeth. I said to this young woman: "All the ladies in that house must have nice teeth." She said: "They have."

Dr. Goodman A. Miller, of Chicago:

We have a nice little society in Englewood, about 125 members. Through our neighbors and the Bureau of Charities there has been instituted an infirmary for the care of the teeth. This infirmary is open every day of the week, and the dentists of the Englewood society have donated their services. The work is free, and a complete record is kept of the work done for the patients. There is no question but that it is done for people who could not afford to pay. I believe we are doing a splendid work, and we are glad to be the pioneers in this work in Chicago.

Dr. Allen (closing the discussion):

I have only a word to say in conclusion, and I thank you for the reception which you have given my address and for the discussion of it. I am glad some of you disagree with me, and those who went at it in quite a hearty way I do not think have disturbed anything I have to say. I wanted to make you think that you are members of a great society. I also wanted to warn you against the dangers of self-satisfaction. If you are so satisfied with yourselves that you are content to remain where you are, you will find that Iowa and Michigan and the rest of the societies will leave you behind. I do not want to see that happen.

In regard to the educational outlook, I do not want to make a criticism of the colleges, and I do not see why anyone should have thought I did, but nevertheless if that Minnesota bill becomes a law I do not see but that your Chicago colleges will have to raise your standard, because, as I understand it, diplomas from colleges that do not meet the requirements of that law will not be accepted by the State of Minnesota. Surely there is no one here who has not had a college education but has regretted it when he became old enough to have some sense. At some time it will be necessary for the dental schools to require study the equivalent of the freshman year, in the academic course, and you might as well get ready for it now.

DISCUSSION OF REPORT OF COMMITTEE ON DENTAL SCIENCE AND LITERATURE,

WHICH WAS PRESENTED BY DR. C. N. JOHNSON.

DR. EDMUND NOYES, of Chicago:

This seems to me a very admirable report. I am not familiar enough with the literature of the profession during the past year to discuss it as it ought to be.

It seems to me that the showing is really a very encouraging one, and is in some measure a reply to the objection that our literature is meager and inadequate, and contains but little of serious value. The papers and discussions during the past year have been important, and if we may suppose, as I think we may, that they have been somewhat extensively read, we may look for a marked impression upon the welfare, the progress, the intelligence and influence of our profession.

There is another circumstance that occurs to me in relation to this question of the reading of our literature. We must acknowledge, I think, that men do not read as much as they should, but there is this saving element in the matter: Every one of these papers which is not read as much as it should be after it is printed, was read in some great assembly of dentists, and made its immediate and personal and strong impression on that assembly, and taking in the aggregate the meetings of all the societies in the United States, and all the papers that have been read before them, and the great numbers of men who have listened to them, this constitutes of itself a very considerable acquaintance with the current literature of our profession. I think this is worthy of consideration and remembrance when we feel like criticising the lack of reading capacity of the general profession.

It seems to me that our Committee on Science and Literature has done a valuable thing in giving us a comprehensive birdseye view of the literary products of the year. I have always taken pleasure and a little pride in the fact that this custom was originated the year I was President of the Society, and upon the recommendation made in the President's address. Pardon me for this personal recollection. It seems to me that it has been of sufficient value to compensate for the undertaking.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

THE NATIONAL DENTAL ASSOCIATION.

The coming meeting of this Association in Denver promises to be well attended. The local and publicity committees have worked harder to develop an interest in the meeting than we ever remember seeing such committees work before, and the preliminary program offers an encouraging array of essays and reports. Many important matters are to come before the meeting and they should all be accorded due deliberation. One in particular will be the report of the Oral Hygiene committee. This committee has done a great deal of work and expects to make an extensive exhibit. The question is creating an unusual degree of interest at the present time, and much good should come from a discussion of the best means of carrying on the work.

The National should stand sponsor for many of the prominent reforms needed in dentistry today, and there should be a unanimity of sentiment working to this end. Many plans have been suggested for bettering the affairs of the National Association and making it more truly representative of the entire profession, and we trust that at Denver this matter may be discussed in an unimpassioned manner and something tangible develop.

The only thing needed is for all who are interested in the profession to bury personal ambition and work for the common good. No personal honor is worth the price of a general and widespread dissension. If men will work faithfully for the welfare of the organization, sufficient personal honor will follow as surely as the sun rises. This should be the prevailing sentiment at Denver, and if it is the meeting of 1910 will go down in history as the greatest one yet held.

EDITOR'S DESK

AN AUTOMOBILE TRIP THROUGH EUROPE.

BY DR. F. W. GETHRO.

(Continued from our June Number.)

From Leipsic, we proceeded north to Wittenburg, the home of the reformer Martin Luther, where we visited the Luther Museum, which contains many interesting historical specimens. After spending the night at Wittenburg, we were off for Berlin, by way of Potsdam.

The Zeppelin Air Ship Arriving in Berlin.

Potsdam, frequently spoken of as the "Versailles of Prussia," is about a fifteen-mile drive from Berlin, and is of special interest because it is the summer home of the present Emperor of Germany. The palace and the beautiful grounds are extensive and well worth a visit. The drive through the forest from Potsdam to Berlin is one of the finest in that part of the country and should not be missed.

Berlin with its three million people is one of the great cities of the world and can well be called the "Modern City" of Europe. I think one of the first and lasting impressions that the visitor gets is the wonderful cleanliness of this magnificent city. Unter den Linden, the famous street of Berlin, is known the world over as one of the finest streets in the world. This beautiful street, with its wonderful buildings, is 198 feet wide and about a mile long. Much might be written about Berlin, but I will confine myself to the things that are interesting from an automobiling standpoint. Certainly, the police regulations are ideal. The police are part of the army and are under the regulations of the army officials. We had an opportunity of seeing this discipline put to an extreme test, for we were in Berlin when Count Zeppelin sailed into the city, by the air route. France and England are quite crazy about the aeroplane, but Germany is pinning her faith to the dirigible airship of the Zeppelin type. The German people are wild about this monster air craft. Several days before the announced time of the Count's arrival in Berlin, the people started with their decorations, and on the day of his arrival the city was a mass of gorgeous decorations. I have never witnessed a more enthusiastic holiday than was given to this man of the air.

A Striking View of a Castle on the Mosel River.

The day was perfect, and about eleven in the morning we discovered the mammoth airship coming from the south. Few realize the immense proportions of this wonderful craft. It is larger than most ocean liners, being 450 feet in length. Built in the shape of a cigar, it has a number of gas compartments, so constructed that it could continue on its journey, even though several of the compartments were put out of commission. The perfect maneuvers that this airship were put through excited the countless masses to wild enthusiasm. Truly it was a beautiful sight!

A Typical Street Scene, Rouen.

This huge dirigible carries a crew of fourteen men and about as many passengers. The aluminum cars are fitted with glass floors and doors and comfortable furniture. In fact, the interiors of these cars are fitted out with the elegance of a private yacht. An electric system furnishes the illumination. Four propellers, driven by two gasoline engines, supply the power and this ship carries enough gasoline to travel about 700 miles. When we think that this monster craft can sail in the air for more than twenty-four hours at a time and cover

Two Artistic Bridges in Venice.

Court of "William The Conqueror Inn."

such an amount of territory, we begin to realize what an agency for destruction it could become in times of war. Sailing high in the air, under cover of night, this ship would be comparatively safe from any firing from below. From this height, explosives could be dropped into cities or on warships, working great havoc. The possibilities of the aeroplanes and dirigibles in war times are enough to make the various nations take notice. England has a huge dirigible almost completed, which is 600 feet long, and Germany is said to be constructing one 900 feet in length.

The Famous Old Clock Gate House, Rouen.

After spending a week in Berlin, we left on August 31st for Dresden, the "German Florence," where we enjoyed the world renowned picture galleries. From Dresden we took a westerly course, passing through Chemnitz, Altenburg, and Jena, arriving at Weimar for the night stop. We found Weimar all illuminated for the people were celebrating the Battle of Sedan.

The following morning found us on our way to Frankfort-on-the-Main. A wonderful international exposition of airships, aeroplanes and everything pertaining to their construction was held here during the summer and here we saw our first exhibition of flying, but the flights seen later were so much more wonderful that I merely mention these flights.

Continuing towards the west we drove from Frankfort to the old city of Mayence, situated at the junction of the Main and the Rhine rivers. We followed the beautiful Rhine to Coblence, which is at the junction of the Rhine and Mosel rivers.

At Coblence we left the Rhine and followed the Mosel River to Luxembourg. From Luxembourg we proceeded south to Metz and then due west to Verdun, where we spent the night. The next day found us on the way to Rheims, another city of vast historic interest. Its cathedral is a beautiful structure, ranking with the renowned European cathedrals.

Beautiful Street Scene, Venice.

During the past summer this ordinarily quiet town of France suddenly became famous, when the eyes of the world were centered on the big international aviation meet held there. Each day wonderful feats in the art of flying were accomplished, only to be outdone the following day. Here it was that our own Curtiss, the only American entered, won the grand speed prize. The winning of that prize brought the cup to this country and this year it will be competed for in New York.

From Rheims we proceeded to Chateau Thiery, where we spent the night, and the next morning started for Paris, for our third visit. There is only one Paris, and we were happy to be back again. Europe was aeroplane crazy (we caught the fever) and as the big aviation meet was now going on in Brescia, Italy, we decided to attend. On account of the lack of time, we abandoned the car, and took a night

The Famous Bridge of Sighs, Venice.

train for Milan and from there went to Brescia. We saw some very fine exhibitions of flying. We saw Curtiss win the big event, the 35,000 franc prize for speed and distance. Bleriot made a number of flights, but none of them equaled Curtiss' feats. At that time the highest flight recorded was a distance of 600 feet, but aeroplaning is advancing so rapidly that this record has been beaten many times since, the record at the present time being about a mile. In fact, it is not possible to make any accurate statements at this time, for the records of yesterday are almost commonplace the following day. After seeing the flying in Brescia we took a trip to Venice.

An Inviting Stretch of Central France.

Venice is one of the cities where the automobile is not popular. In order to get a good impression of Venice one should plan to arrive there after dark, preferably during moonlight. Venice, by moonlight, is extraordinarily beautiful, but to see it in the day time, with all its dirt, and its unpleasant odors, dispels the romance and makes it a great disappointment. We spent a day viewing the justly famous Venetian architecture and then took the night train to Paris.

Leaving Paris we followed the Seine River to Rouen, one of the richest of French cities in medieval architecture. Its cathedral also ranks with those of great renown. The pictures shown will give some idea of the quaint architecture in this city. The roads from Paris to Rouen are said to be the finest in France.

We followed along the Seine river to Honfleur, which is situated at the mouth of the river. Here we followed the sea coast to Dives, spending the night at the famous "William the Conqueror Inn." The picture of the court will give an idea of the interior beauty of this delightful spot.

From here we drove to Havre, for we were to set sail the following day for home. We arrived in Havre about four o'clock in the afternoon, and before six that evening the machine was boxed and placed in the hold of the ship. Twenty-one other American machines were aboard this one ship, bound foı New York. This ended one of the most delightful motor trips that I have ever experienced. I have been prompted to relate some of the details of this motor trip, because I thought it possible they might be of some value to prospective tourists abroad. If any of the readers of the DENTAL REVIEW should desire to see any of the various maps I have gathered, or if they think I could aid them by any suggestions, I will be only too glad to be of any assistance to a brother tourist.

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Neutralize Silver Nitrate Stains:—Neutralize fresh stains of silver nitrate with solution of sodium chloride.—*Carl M. Cahill, Chicago.*

Mixing Amalgam:–For mixing amalgam rapidly and at the same time to prevent contamination, place alloy and mercury in a thick rubber finger cot and roll between palms of hands.—*P. G. Puterbaugh, Chicago, Ill.*

Some Uses for Silex:—Silex, the same as is used in inlay investments, is very effective as an abrasive powder in prophylactic work, and for polishing ground porcelain surfaces. It is very superior to pumice.—*M. L. Schmitz, Chicago.*

To Avoid Irritation of Cement When Setting Crowns:—Very often the mounting of crowns or bridges with cement causes considerable pain, and this can be avoided to a considerable extent by coating the outside of the bands at the gingival portion with vaseline. This allows the cement to slip away from the gum margins, thus avoiding its irritating effect.—*R. E. Mac Boyle, Chicago.*

How to Repair Worn-out Mandrels:—Mandrels which have been much used on stones soon lose their usefulness by reason of wearing on the thread of screw. Their usefulness may be prolonged when in this state by putting the screw in place and then placing the mandrel on anvil and with a small hammer striking it sufficiently hard to cause a slight flattening over the screw.—*Chas. A. Wachter, Girard, Ohio.*

A Good Bench Block:—A good bench block for filing plates on is easily made by taking a piece of wood an inch square, trim one end round and then drive on about four inches of garden hose. This makes just enough cushion to be nice to file on, and if your file strikes it, it does not fill, and if you wear out the rubber you can go out in the back yard and get another piece. This is to be fastened to the work bench.—*W. F. Reber, Chicago.*

Treatment for Exposed Root:—In the case of an upper molar with extreme recession of gum from lingual root, accompanied with pain and soreness, a method of rendering the tooth comfortable is as follows: Dip a pledget of cotton in sandarac varnish; on this lay a smaller pledget saturated with oil of cloves, place them over the exposed root and pass the floss around the tooth and ligate the pad to the root; in other words, place a bandage on the exposed root. This will usually give immediate relief and when left for a day or two will render the tooth sufficiently comfortable so that it can be opened and devitalized.—*J. H. Gill, Chicago.*

Collecting Fees:—When a patient applies to you for services, unless he is familiar with your method of doing business, make definite terms (at this time your patient will not become offended). You may make your terms to suit the patient, but there should be a definite understanding in each case. Dentists have told me that some of their wealthiest patients often let their bills run for a year or two. This is the fault of the dentist—have definite terms and then keep after the amount until settlement is made. You may lose a patient once in a while, but that patient will be better educated to pay his bills when he applies to our neighbor for services.—*W. A. Buscho, Chicago.*

An Inexpensive Casting Device:—This is made by removing the safety plug or time attachment from a vulcanizer and in its place put a shut-off cock. To this is attached a short length of iron tubing connected to an iron plate perforated by several small openings which lead into tubing. Open all valves on vulcanizer and with a small amount of water in it, heat until steam is made; then close all valves and allow vulcanizer to cool. Now place a previously prepared case for casting over small openings in iron plate and melt your gold in crucible formed in investment, and when gold is fused open shut-off cock between iron plate and vulcanizer. The casting is made by the negative pressure formed in vulcanizer by condensation and contraction of confined and expanded steam. I have been using this device for eight months successfully.—*Harry L. Jones, Chicago.*

To Obtain Clean Results in Casting Inlays and Bridges:—This depends not only on a well-finished wax model, the surface of which has been smoothed over with vaseline, and this in turn removed by means of alcohol, but also on the manner in which the same has been invested and heated. I have obtained my best results by first painting the wax model, after mounting it on the sprue wire, with soapy water, just prior to investing, and then applying the investment material over this with a camel's hair brush. The soapy water causes the investment to flow evenly over, and adhere to the wax model. The investment should be thoroughly mixed for a few minutes to a creamy consistency, and then by rolling the mixing bowl slowly round on its side all air bubbles are excluded. In heating, do not bring the ring in direct contact with the flame, but place a thin sheet of asbestos in between, which obviates any liability as to the investment cracking.—*A. Dangar Burne, Sydney, N. S. W., Australia.*

MEMORANDA

W. D. MILLER DENTAL CLUB.

The W. D. Miller Dental Club of Pittsburg, Pa., was organized in December, 1909, with the object in view of promoting the educational and financial interests of its members. The club is a great success.

JOSEPH N. KATZ, Secy.

RESOLUTIONS PASSED BY THE OSHKOSH DENTAL SOCIETY.

Whereas, The all wise Ruler in His providence saw fit to suddenly take from this life Dr. William Decker, therefore,

Be it Resolved, That in the life of this member we can draw a lesson worthy of emulation of his character as a genial, enterprising citizen, generous to a fault, and his high standard as a dentist, whose practice covered a period of nearly half a century, always industrious and an honest painstaking practitioner.

Resolved, That in his death we bow in humble submission to the Divine will and extend our sincere sympathy to the family.

Resolved, That a copy of these resolutions be sent to the family and placed upon the records of this society.—Respectfully submitted, M. L. Christensen, W. H. Ford, C. C. Norris.

NATIONAL DENTAL ASSOCIATION.

The National Dental Association meets at Denver, July 19, 20, 21, 22, 1910. The Brown Palace will be hotel headquarters. As Denver has without difficulty cared for such conventions as the Knights Templar, Elks, G. A. R., N. E. A., and the National Democratic Convention, the accommodations are more than ample. The first-class hotels of Denver are so numerous that an attempt to enumerate them in the space allotted to this article is out of the question. Rooms without bath can be secured for from $1.00 to $2.50 per day, and for two persons, from $1.50 to $3.00; with bath, $1.50 to $3.00, and for two persons in room, $2.00 to $5.00 per day, according to location and size of room. In and near the center of the city there are many high class rooming houses where rooms can be secured at lower rates, while in the many excellent restaurants throughout the business section, meals can be procured at reasonable prices. Board and room can also be had

Trout Lake on D. & R. G.

in boarding houses or private families. A booklet on Denver, containing a list of all the hotels with their rates together with much other valuable information will be mailed, upon request to the Publicity Committee. To secure the best accommodations, reservations should be made in advance. From the 15th of June, the committee will have a competent and experienced man, familiar with the city and state, devote his entire time to arranging for the accommodation of all guests, in accordance with their wishes. This plan has been adopted to insure prompt and undivided attention to all of the many matters which are of vital importance to the comfort of the visitors. Special plans will be made to entertain the wives and families of the visiting dentists during the sessions of the convention. Summer excursion rates prevail from all parts of the country, and details concerning them can be secured from local ticket agents. The summer excursion rates out of Denver to points of interest in Colorado are very low, being on sale continuously throughout the summer; while much lower rates are in effect for three-day excursions; Saturday, Sunday, and Monday; and lower still for Sunday excursions. Certain other days in the week tickets are on sale to all points in the state at rates much lower than the regular excursion rates; and to the principal resorts in the state, especially low fares are in force for parties of three or more traveling on one ticket. All of these tickets have their special features regarding time limit and stop-over privileges. Accommo-

Canon of the Grand, on D. & R. G.

dations can be secured at the various resorts in the state to suit the tastes of all, at from $7.00 per week and up with board; and one may choose to rough it or to live at the finest appointed hotels. Immediately upon arrival, visitors are requested to register and give forwarding instructions for mail. In case any change of address is made while in the city they are requested to notify the committee at once. Mail addressed "care National Dental Ass'n., Denver, Colo." will insure prompt delivery. Local offices will be established at the Union Station, July 17th, 18th and 19th, to direct and assist arriving visitors, and throughout the entire meetings offices will be maintained at the Brown Palace hotel and at the Auditorium, at which latter place will be the principal office of the local committee, where can be secured all information relating to the meeting, the city and state, the hotels and railroads. There will be provided for distribution literature from all the railroads, and complete information concerning vacations in the mountains. A great deal is being said about opportunities for vacations in the mountains simply because we know that people who avail themselves of such, will not be disappointed. This statement is based not upon our own feelings in the matter, but upon the statements of those who spend their summers in Colorado. Do not fail to bring with you a light overcoat or wrap, and if you are going into the mountains, bring warm underwear, strong high shoes and old clothes. Specia train and car service is being arranged from Chicago and St. Louis. The round-trip rate from Chicago is $30.00, from St. Louis, $25.00, and from Kansas City and Omaha, $17.50. Notice: The rates to Denver from the East apply to Colorado Springs and Pueblo, and that tickets can be purchased through to either of these points, which will enable the purchaser to visit the numerous points of interest south of Denver (Colorado Springs, Manitou, Garden of the Gods, Pike's Peak region, Pueblo, etc.) without any additional expense for transportation. Unlimited stop-overs are allowed, within final limit, in both directions at Denver and Colorado Springs. Tickets may be validated for return passage at either of the points mentioned, leaving it optional with the purchaser whether the ticket is used south of Denver. Many of the rates are not definitely determined yet, but in general they will be based upon a fare and one-third for the round trip. Rates from Ogden, Salt Lake and Utah common points will be $22.50 and from California points the rate will be $55.00, on sale July 14th and 15th, final return limit, three months. There will be cheap excursion rates from Denver to the Pacific coast. For hotel reservations, detailed information, vacation suggestions, estimates, etc., write to Dr. H. F. HOFFMAN, Chairman Publicity Com., N. D. A., 612 California building.

RECENT PATENTS OF INTEREST TO DENTISTS.

950109. Saliva ejector, Marcus W. Levkowicz, San Francisco, Cal.
950294. Dental swaging machine, Edward O. Lothamer, Canton, Ohio.
951130. Saliva ejector, James B. Jordan, Nashville, Tenn.
950768. Dental bracket engine, John F. Hammond, Prince Bay, N. Y.
951736. Filling and crowning machine, Lucas Lity, Baton Rouge, La.
952437. Dentist's mandrel, Wm. B. Miller, Altoona, Pa.
952155. Artificial tooth, Emory L. Townsend, Los Angeles, Cal.
951860. Dental instrument, Edward W. Wallace, Lake Bluff, Ill.
951891. Dental instrument, Edward W. Wallace, Lake Bluff, Ill.
949850. Means for booking metallic leaf, Charles E. Smith, Oaklawn, R. I.
950988. Dental aseptic tray and stand therefor, Charles F. Booth, Canandiagua, N. Y.
951614. Apparatus for casting dental inlays, Charles L. Kemery, Pittsburg, Pa.

952229. Dentists' bridgework, Walter A. Burns, St. Thomas, Ont., Canada.

Copies of the above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall building, Washington, D. C.

ILLINOIS STATE DENTAL SOCIETY.

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THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, AUGUST, 1910. No. 8

CASTING AS APPLIED TO CROWN AND BRIDGE WORK.*

BY DR. F. E. ROACH, CHICAGO, ILL.

The thoughts I have to present to you tonight are not new, and yet they are not old. Three years ago this paper could not have been written, nor is it my purpose at this time to offer a solution to the many problems that surround the casting process, but rather to submit my impressions on the subject as applied to crown and bridge construction. The field is so large, and the possibilities so great, that it is only possible to touch upon some of the more important phases of the subject.

In our enthusiasm over the casting of metals in the construction of inlays we are likely to overlook some of its uses in other directions. We are inclined to take a selfish view of the matter, and by reason of the great saving of physical exertion in making large gold restorations our attention is naturally directed first to its great value in this particular class of work at the expense of its other uses; and while I am willing to grant that its greatest value to the profession, and to the public, is in the field of filling procedures, it is nevertheless true that were its uses confined exclusively to the construction of crowns, bridges and partial dentures, we would owe a life's debt of gratitude to its inventor. But since the making of gold inlays is, as a matter of fact, a prosthetic procedure, it is overwhelmingly evident that prosthetic dentistry is reaping the greatest benefit from this wonderful invention; and the fact that it has so simplified many of our operations warrants the prediction that the profession will do more prosthetic work in the future than it has in the past, and for the same reasons a very superior quality.

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*Read before the Chicago-Odontographic Society, March, 1910.

Too much of our work has been assigned to the dental laboratory, but we are hopeful now that this revolutionary method of manipulating metals will have a beneficial effect in this respect. The dental laboratory is the outgrowth of a demand upon the part of the profession for someone to do its dirty rubber work, and a need too, in many instances, for assistance in the construction of all sorts of metal work. But with a method so fascinating in every detail, yet so simple, accurate and clean, I would consider it a sacrifice of one of the real pleasures of practice to send this work to the laboratory.

It is not my intention to belittle the laboratories, but rather to encourage your renewed interest in this new era of prosthetic dentistry.

Let us for a moment look into some of the problems that confront us in crown and bridge construction. Assuming that the conditions are favorable for a crown or a fixed bridge, the first question that arises is what method of construction will best meet all the requirements. The stress, length of bite and cosmetic demands in crowns, coupled with the length of span, condition and location of abutments for bridges are factors that should govern the selection of materials to be used and the method of construction to be employed.

Putting aside the all-porcelain construction at this time, we will have to consider the discrimination between the various metals, their forms, alloys, combinations and processes of manipulation. A knowledge of the comparative strength of the several metals and their alloys that may be used in the mouth is important. The comparative strength of these metals and their alloys when used in the form of rolled plate, drawn wire, fused as in solder or cast under pressure by the Taggart process, is also of vital importance. But as yet we are groping in the dark and our employment of these metals in their various forms is more or less empirical. We have a fairly good general knowledge of the subject, but no scientific data to guide us in making a selection of the materials and processes that will yield the best results in each individual case.

In the selection of material for a bridge, for instance, we have to take into account at least five different forms of stress, viz: tensile stress or that force which tends to stretch or lengthen the material; transverse stress, or the bending force; compressive stress, or that force that tends to shorten the material; torsional stress, the twisting force and shearing which tends to slide one part of the material upon the other.

Gold in its pure state from a manipulative viewpoint, and its resistance to chemical action is an ideal material to be used in the mouth; and whether used as a casting or in plate form, it retains its softness to a remarkable degree, but its low resistance to all of the above mentioned forces precludes its employment in most of our crown and bridge construction, so we must resort to some form of alloy to obtain adequate strength; and since we are dealing more particularly with the casting of these alloys of gold the question naturally arises what alloy is best suited to this class of work. My preference is an alloy of 5 per cent to 10 per cent platinum and gold. While other alloys possess a higher degree of resistance to transverse stress, their limit of elasticity is less and their tendency to assume a crystalline form and a consequent loss of integrity is much greater. Since it is the transverse stress that causes most of our breakage, it is essential that our prosthetic pieces especially have sufficient bulk of material to resist rigidly all stress that is likely to be applied or to employ a material of high limit of elasticity and great tensile strength. And in view of the fact, then, that all castings are quite devoid of elasticity, it is at once apparent that we must either make our cast pieces heavier or employ some form of rolled or drawn metal reinforcement. As a matter of fact the combination of a wire or a piece of plate with the casting has in my hands served the dual purpose of increasing strength and facilitating construction. For illustration, the use of an iridio-platinum dowel in connection with the cast base crown is incomparably better in every respect than the casting of both dowel and base.

The question is: Shall we cast or shall we not cast, and why? Three years' clinical experience with this process has fully established its practicability in this class of work. We have improved our manipulation and extended its uses until today practically the entire system of crown and bridge technique of three years ago is obsolete.

While dogmatic in tone, the foregoing statement is my answer to the above question. However, a further substantiation of the claims made in favor of casting may be brought out in the description of methods that is to follow.

Before going into details of technique let us consider briefly some of the principles involved in this class of work. Primarily, what constitutes a successful crown? I should say good adaptation to root with reference to peripheral continuity and root-end apposition in dowel crowns, freedom from peridental impingement, close contact with approximating teeth, at the same time preserving proper interproximal space gingivally, correct occlusion, anatomical form and alignment with adjacent teeth, adequate strength and compliance with the cosmetic requirements. The same may be said of the bridge, with the additional observance of the general rule that the number of dummies supplied should not exceed the number of abutments and piers. Assuming, of course, that the preliminary requirements of healthful conditions have been established.

With the above mentioned standards for a successful crown before us, how can we best attain them? Take, for illustration, the crowning of an upper central incisor under ordinary conditions, excluding the gold crown of course, what crown shall we use? I dare say that a large per cent of the profession would employ some one of the manufactured porcelain crowns and attempt to grind and fit it to the root. But shall we admit that this is the best we can do? Let us hope not. For of all the crowns that can be placed over a root this type is the poorest, and personally I have nothing but condemnation for their employment as a system of practice. Good crowns can be made in this way, of course, but the very nature of the method invites slipshod work and a trust to cement and luck to take care of the discrepancies. As Dr. Johnson said in his paper last month regarding amalgam: "It does not inspire us to our best efforts." I like this thought for the reason that it applies to so much of our work. We need all the incentive and inspiration we can get to spur us on to better things.

The various forms of porcelain faced dowel crowns have a wide range of possibilities, but the highest type of artistic results are not obtainable, the reasons for which are so well known that mention at this time is unnecessary.

The hand-made, all-porcelain crown approaches the ideal in many respects, but the fact that so few are made is evidence that the great majority of the profession want a crown that is much simpler in construction. As a crown that is no compromise in any sense and with no apologies, I desire to lend my most hearty endorsement to the cast base porcelain crown. In every respect, from my viewpoint, it is nearly ideal for the ten anterior teeth and very often for the molars.

The all-gold crown will probably meet the requirements in a larger percentage of cases for the molar teeth, and here again the casting facilitates construction with more accurate results.

Another feature that must be considered in this connection is the inlay abutment. There are at present a great many inlays being used as abutments and piers in bridge work, and a word of warning seems appropriate at this time. All inlays serving this purpose should have large areas of surface bearing on the anchor tooth, and all enamel walls unsupported by strong, healthy dentin must be either well protected by the inlay or removed entirely. Large compound cavities in molars and bicuspids may be relied upon for anchorage in judiciously selected cases without pins, but as a rule all inlays serving in this capacity should have supplemental pin anchorage or its equivalent; and when limited to the simpler cavities one or more good strong pins are indispensable to adequate strength.

The field of inlay abutments made possible by the casting process is extending rapidly, and there seems to be no limitations in the minds of many. An idea that is much too prevalent is that the same cavity preparation and dependence for anchorage of individual inlays will suffice for inlay abutments. The terrific leverage and torsion that would tend to dislodge an inlay when attached to a bridge is not taken into account; and while the casting process is serving a wonderfully good purpose in this direction, if we fail to observe the mechanical principles involved in its application we are going to meet with disappointment.

A desirable feature in the combination gold and porcelain crown or bridge is the avoidance of subjecting the porcelain to the weakening influence of expansion and contraction of metals and sudden changes of temperature incident to soldering or casting direct to the porcelain. Casting offers decided advantages in this respect over other methods, making possible at the same time the employment of facings, saddle-backs, countersunk, diatoric, rubber teeth and loose pin crowns, or in fact any form of tooth now on the market may be used successfully, thus giving us an unlimited selection; and while casting may be made direct to all of these different forms of teeth without apparent injury, it is also true that most of them may be made detachable, thereby securing the cemented porcelain in the finished product, an advantage well known to all of you and conceded to by everyone who has given the matter any thought.

The discussion of a practical subject of this sort would be incomplete without a detailed description of the technique involved, but in order that the scope of my paper be kept within reasonable limits it will be necessary to eliminate much of the minutiæ, and trust to your intelligence to fill in the omissions.

A knowledge of individual crown construction comprehends that of bridge abutments so that our description of technique will be directed to the making of two types of dowel and one telescope crown, referring at the same time to the modifications necessary where used as abutments.

For convenience of illustration we will take an ideal bridge case which includes the cuspid, first and second bicuspids and the first molar. The cuspid to be restored with a cast base porcelain-faced crown, the molar with a gold shell crown, and the bicuspids to be supplied with loose pin crowns or gold-backed facings. We will consider first the construction of the cast base for the cuspid.

With apical end of root properly filled all remaining coronal portion of crown is removed in any approved manner to or flush with the gum. The canal is enlarged with a reamer, never a bur, to the size of 14 B and S gauge at orifice, tapering to 18 gauge at the bottom. The opening into the canal is now enlarged with a countersinking instrument. The end of root is faced off labially below the gum. Lingually the root is faced off so that a definite shoulder is secured which serves all the purposes and benefits of the band with none of its disadvantages. (The root preparation shown on models made with the universal facer seems to me is ideal.) A shallow groove is also cut from the orifice of canal to labial surface of root. The dowel is now shaped and fitted to canal, allowing it to project about one-eighth of an inch. A loose pin porcelain crown which has been previously selected for the case is now ground and approximately fitted labially so that the joint between the porcelain and root end will be very close and entirely obscured from view by the free margin of the gum. The lingual portion of crown is now cut away until we have a V-shaped space of about 1-16 of an inch between root and crown. We now proceed to secure the wax fitting in the following manner: Heat dowel and force it through a piece of casting wax which has been previously softened and with crown acting as a plunger, force it nearly to place on root; remove crown, wax and dowel intact and trim off surplus wax, after which the wax is slightly warmed over flame, holding crown with fingers to prevent overheating; readjust to root and force the crown entirely to place, remove again and cut away surplus wax. It is now set back onto the root and with a round-pointed instrument the wax is burnished to an accurate adaptation and alignment with base of crown and end of root. Remove crown and wax together from root, attach sprue on lingual surface of wax, detach from crown, invest and cast. The crown is then cemented to base, finished and set. The features of this crown are good adaptation, peripheral continuity and great strength.

A detailed analysis shows, viz: The tapered round iridio-platinum dowel insures maximum strength with minimum destruction of tooth structure. The countersink and groove are intended primarily for strengthening the wax during construction, but serves also to strengthen dowel at point of greatest strain and offer a more positive and secure seating of crown.

The lingual shoulder serves the purpose of a half band which is simple of construction, much stronger and offers a better surface continuity than any form of band. The porcelain is not weakened by the heat in the first place, and it is a well known fact, too, that a piece of porcelain the size of an ordinary tooth well supported by a close-fitting, cemented joint is practically unbreakable by any force possible with the human jaw. Another point favoring the porcelain is the removal of the lingual extension which in many cases is so attenuated as to be of questionable strength. The detachable feature is also a decided advantage in case of repair.

Porcelain Faced Crown.—With root prepared a band is made in the usual manner and facing ground and fitted as for Richmond crown. The wire to be used for dowel is hammered out flat on one end and notched to correspond with facing pins so that the flattened end will pass in between them and lay flat against the facing. The other end of dowel is adjusted to canal so that facing with pins resting in notches of dowel will fit snugly against band labially and line up with other teeth. The facing is now removed from the mouth and a mass of softened wax is forced around dowel base and back of facing and with base end of wax again softened over flame, force to place on root. The band which was left on root should now be removed with dowel facing and wax all intact and secured to place by running a hot instrument around the outer edge, melting the wax to it. Remove excess wax, warm up slightly and put back onto root for final adjustment, after which carefully remove from the mouth and with a piece of sticky wax heated and attached to facing pull it away from wax, place carbon points in pin holes, invest and cast. The facing may be secured to the backing by one of two means. If backing is thick enough to cover the full length of pin the facing can be securely attached in the following manner: With a twist drill two or three sizes larger than pin holes, drill out carbon points, thus making holes slightly larger than pins to accommodate a sort of head that is made on end of pins by pinching with pliers. The holes are now carefully filled with cement and with entire back of facing covered with cement it is pressed to place.

In case of thin backing the holes should extend through to the lingual surface and slightly countersunk. Pins are cut off flush with surface of backing and facing is secured to backing by cementation and riveting, which should be done before the cement crystallizes by imbedding facing in a softened mass of modeling compound with backing up, and with small jeweler's hammer rivet ends of pins and finish flush with lingual surface of backing. This method offers an absolutely reliable means of attaching facing to thinnest of backing, is easily accomplished, and in case of breakage is repaired with equal facility.

Casting has very much shortened shell crown construction, in that model making is eliminated and greater accuracy is obtained by reason of the fittings being made to the tooth direct. A very satisfactory method is as follows: With band properly fitted, contoured and adjusted to contact and occlusion, a mass of softened inlay wax is placed over end of band and tooth and patient requested to close; remove band and wax together from the mouth, trim off excess wax, and by holding gingival edge of band in flame heat sufficiently to melt wax around band so that it may be held securely in place while it is put back on the tooth for final adjustment, after which it is removed from the mouth and the necessary carving done Slitting occlusal end of band will insure better hold of wax. Any unnecessary thickness of wax may now be reduced from the inside by means of a suction wax carver, sharp excavators or burs. Attach sprue to some convenient point, invest and cast. Under proper conditions there will be perfect union of cusp with band. If there should be lack of union the joint may be soldered.

Other variations in construction, notably among which may be mentioned the Dittmar and Meerhoff crowns, and the cast jacket; first shown by Dr. Taggart in his original models.

As a means of supplying the dummies in bridge work, I have found the method suggested by my associate, Dr. H. E. Barber, to be decidedly advantageous. His plan is to grind and fit the facings to the alveolar border and occlusion, wax them to place and then make a wax, plaster or a modeling compound splint for buccal surface, after which a strip of inlay wax is substituted for the wax that previously held the facings, and while soft it is molded into close apposition to facings and occlusion with antagonizing teeth. The wax can now be conveniently carved to proper lingual and occlusal form, removed and cast in one piece and subsequently soldered to the abutments. The facings are attached as in above described porcelain faced crown.

In view of the fact that there has been some question as to the priority of invention in this connection between Taggart and Solbrig of Germany, I desire to quote from the pen of Dr. Solbrig himself in an article published in the January, 1910, issue of Ash's Quarterly, the following:

"In these various methods the construction of a matrix in gold or platinum was still indispensable, and it was Taggart, of Chicago, who first did away with it, by the application of pneumatic pressure in combination with the wax dispersion method. His merit lies not only in the ingenious invention of his apparatus, but also, and above all, in the influence which he exercised upon many colleagues with inventive minds, who were led by his enthusiasm and his success to make research in the same direction. Before his apparatus could be procured several other systems were pressed upon the notice of the profession, but notwithstanding this Dr. Taggart must without doubt be considered the pioneer of the present period, as regards the casting of metals."

In conclusion, will say with reference to the technique of casting, that after much study and experimenting with a great many ideas and suggestions for improvement in this direction, I am forced to the conclusion that the closer we stick to the technique of the master mind in this field the better off we will be. To my mind the advantages of casting as applied to crown and bridge work are so great that never a day passes that I do not bless the name of Taggart.

THE BUSINESS BUREAU FOR DENTAL SOCIETIES.

BY HENRY GLOVER LANGWORTHY, M. D., DUBUQUE, IOWA.

A movement to establish business bureaus for county medical and dental societies with the idea of having a recognized attorney at their command who will call upon members regularly every quarter in a systematic attempt to collect old bills, will, after a little consideration, meet the approval of the majority of physicians and dentists. Some of the older members may not at first regard the installation of such a system with any degree of favor. They are pretty sure to state, and with considerable truth perhaps, that "such schemes have been tried and failed." While this statement is, of course, no indication that fundamentally the idea is wrong, still the proposition today must be one intensely practical and be, moreover, the natural outgrowth of newer conditions or it is pretty sure to meet the same fate. Even failures have their fruitful lessons. The plan which I present for your approval and which the writer has succeeded in having adopted by the Dubuque County Medical Society, is to simplify as much as possible the ordinary plan of business co-operation and apply it in a way that will fit county societies of smaller cities, where it is often badly needed. The method of the elaborate self-running bureau of a center with a million population carrying its trust deposits, is not fitted altogether for the starting point of a business bureau in comparatively small communities, hence the changes suggested. The essayist is bold enough to hope that some such plan as proposed may be adopted by every county medical and dental society of any size in the United States in the not far distant future.

Among the several reasons for the creation of practical collection departments for county societies may be mentioned: First, if the medical or dental society practically supervised the collections of all its members through its collection department, little personal offense could be lodged by patients against the dentist for bills running over twelve months. Second, many now almost charity cases (not by virtue of necessity but through unwillingness on general principles to pay a doctor's bill) would become good pay. Third, the attorney representing the society would be able to make systematic quarterly collections for the doctor better than anyone the latter could obtain. While the matter of placing bill should, I think, remain optional, it would seem clear that an able attorney making a special business of the work could handle medical or dental accounts better than some unknown and irresponsible outside collection agency. The following plan and copy, the result of over eighteen months' work on this subject, will briefly outline the scope of the bureau at Dubuque and furnish a definite working basis to place before members. Its adoption is of too recent a date to allow of statistical data as yet, but as chairman of the bureau, I hope to be able to present in a subsequent paper the facts collected during the coming twelve months. That modifications must be made as time demands goes without saying. Printed copies of the abstracted plan in detail will be gladly furnished by the writer on application.

INSTALLATION AND PLAN OF BUSINESS BUREAU FOR DENTAL SOCIETIES.

Whereas, it is deemed advisable that the..............County Dental Society should adopt a business bureau,

Therefore, be it resolved, in meeting duly assembled this....... day of December, A. D., 19..., that the same be and is hereby adopted, and known as the business bureau of the............County Dental Society and that the said bureau be conducted along the lines and governed according to the following:

1. That .... shall act as attorney for the ....Dental Society in the capacity of conducting the business of the "Business Bureau" of said society, and pursuant thereto said attorney will call every three months upon dentists who are members of the ....County Dental Society for statements of accounts and will give receipts for same. That he will keep a separate and private record for each dentist's accounts and correspondence. That he will keep a complete system upon which will be notated the exact status and progress of each account. That he will make quarterly returns direct to the dentists as the business bureau committee

may direct. That he will not bring suit on accounts without authorization and private arrangement with the dentist. That he will assist the committee in auditing accounts. That each dentist's account will be open to his inspection at any time, but to no other dentist, and all other business matters will be kept absolutely private. That due diligence will be exercised in collecting all accounts turned over and prompt settlement made after collection.

2. That the respective dentists will submit itemized statements of such accounts as they desire to place in the collector's hands. That denists will receive remittances made directly to them from debtors. That on remittances made directly to the doctor on accounts in the attorney's hands, commissions will be paid, but no commission will be allowed on bills remaining unsettled or on money not collected.

3. That the committee of the business bureau of .... County Dental Society may, at any time, audit the accounts in the hands of the attorney and shall in cases of dispute distribute to the attorney the amount of his commission and to the doctor the amount due him on such accounts. That the commission to the attorney on accounts collected shall be scheduled as follows, and on accounts colleted in payments or installments the schedule per cent, per payment, will prevail:

Collections of $2.00 or under	50% commission
Collections of $3.00 or under	40% commission
Collections of $4.00 or under	30% commission
Collections of $5.00 to $10.00	25% commission
Collections over $10.00	20% commission

4. That all expenditures in conducting the collections by way of record files, all paper, envelopes, stamps, etc., shall be borne by the attorney.

5. That said attorney, ..., shall be appointed by the committee for a term of three years subject, however, to removal by the business bureau or society for unwarranted neglect, dishonesty or general incompetency.

6. That the attorney shall arrange a reference list as to financial standing and responsibility of patients, accessible to members of the .... County Dental Society, but to none others. This list, together with such additional lists and information deemed justly the private property of the society, shall be turned over to his successor in case of withdrawal, dismissal, or for any other reason.

7. These articles and the power given the business bureau committee may be altered or curtailed by a two-thirds vote of members present and voting at any regular meeting, previous notice of such action having been given all members sixty days in advance.

Signed, Committee

....

....

....

....................Chairman.

......................Attorney.

It will be noted in the foregoing that the establishment of the bureau has taken the form of a simple resolution and that no ironclad contract is entered into between society, or rather business bureau committee, and attorney. The commission schedule here adopted is the one very kindly furnished me by the manager of the Business Bureau of the Chicago Medical Society. While unquestionably a little high, it probably forms the best working basis of any present schedule, especially as many of our first accounts are most undesirable. In closing, the essayist requests that some special thought be given to this subject, as the earning of a competence and its securing for one's self and family will ever be before the doctor.

REPORT OF COMMITTEE ON NECROLOGY OF ILLINOIS STATE DENTAL SOCIETY.*

BY DR. ROBERT GOEBEL, LINCOLN, ILL.

Dr. Victor C. Erausquin, D. D. S. Born in Buenos Ayres, Argentine Republic, 1886. Died in Chicago, May 16th, 1909.

Dr. Erausquin was a graduate of the University of Buenos Ayres, and was taking a post-graduate course at the Chicago College of Dental Surgery. He was a member of the Odontographic Society of Chicago, and became a member of our society in 1908. His remains were taken to his native land by his young wife, who had accompanied him to this country.

Dr. Joseph Donahey Moody, D. D. S. Died at Los Angeles, Cal., Nov. 24th, 1909, aged 68 years.

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*Read before the Illinois State Dental Society, May 1910.

Dr. Moody became a member of Illinois State Dental Society in 1882, remained active till his removal to Los Angeles, Cal., in 1893. Since then he has been a corresponding member of this society.

He was at one time president of the Southern California Dental Society, also lecturer in the dental department of the University of Southern California, a member of the Southern California Historical Society and Southern California Academy of Sciences.

His widow, Dr. Kate Cameron Moody, also a corresponding member of this society, survives him. The remains were brought to Mendota, Ill., for burial, the scene of his earlier activities.

A grand, good man was he. Peace to his ashes.

Dr. Chas. Oscar Lovitt, D. D. S. Born Nov. 29th, 1866. Died Aug. 8th, 1909.

Dr. Lovitt was born on a farm in Henderson county, Illinois, one of a family of nine children. Educated at Gittings Seminary, La Harp, later taking a business course at Burlington, Iowa. He entered Northwestern University Dental School at Chicago in 1898 and graduated in 1901. Formed a partnership in dental practice with Dr. W. O. Butler at La Harp in 1902, which was dissolved a short time before his death, he expecting to locate in Los Angeles, Cal., where he had completed a post-graduate course at the Southern California Dental College in that city.

He was prominent in Masonic work and a member of the Christian church. A modest but enthusiastic worker in his chosen profession, he became a member of our society in 1904. A wife and two little girls survive him.

Dr. John J. Condon. Born in Frostburg, Md., Feb. 20th, 1852. Died March 28th, 1909.

Dr. Condon studied dentistry in Pennsylvania and located in Effingham, Ill., in 1876. He was popular and successful in his chosen profession, a devout Christian and a broad-minded and upright American citizen.

He leaves a wife and one daugther, also two sisters and five brothers, four being doctors of medicine. He became a member of our society in 1905.

Dr. Gilbert B. Treat. Born Dec. 25th, 1859. Died March 3d, 1910.

Dr. Treat was born and raised in Polo, Ill. Educated in the public schools of that city. He began the study of dentistry in the office of Dr. W. W. Krape, now of Freeport, Ill., and continued his study with Dr. Maidwell, of Polo.

Began practice for himself in 1879. He became a member of state society in 1909. On June 9th, 1892, he was united in marriage to Miss Clara M. Good, who, with two children, survives him. He was an expert taxidermist and took much pleasure in collecting and mounting specimens of birds and animals.

Dr. Joseph Wm. Wassall, D. D. S., M. D. Born in Blockley, England, Feb. 8th, 1858. Died Sept. 18th, 1909.

Dr. Wassall's parents emigrated to this country in 1864 and gave their only son such advantages as our public schools accord. At the early age of 16 he entered the dental office of Dr. Geo. O. Howard, of Galena, Ill., and later the dental department of Ann Arbor University, where he graduated in 1878. He first engaged in practice for himself in Darlington, Wis., also at Mineral Point, Wis. Located in Chicago in 1881, where he established and continued to the end one of the most lucrative practices in that metropolis.

Being an indefatigable worker, he improved his leisure in the study of medicine, graduating from the College of Physicians and Surgeons of Chicago whilst engaged in active dental practice.

Dr. Wassall was an active member of the National Dental Association, Chicago Odontological and Chicago-Odontographic Societies, and a life member of our own society.

The activity of this brilliant man was cut short by a very sad accident, he having been washed overboard from a schooner during a storm on Lake Michigan. May the rolling billows of that deep blue sea ever rest lightly o'er his remains.

Dr. A. H. Rainey, D. D. S. Born in Walnut Hill, Ill., May 18th, 1856. Died at Centralia, Ill., Jan. 23, 1910.

Dr. Rainey was educated in our public schools. By teaching he acquired the funds to enable him to attend the Ohio Dental College, where he graduated, class of 1888. Located in Centralia, where he was active up to his end.

Dr. Rainey was thoroughly public-spirited and took a deep interest in the affairs of the community. He was president of the school board of Centralia for many years and an active member of several benevolent societies. He became a member of our society in 1905.

Dr. John Taylor Houston. Born in Staten Island, N. Y., 1848. Died in Peoria, Ill., Sept. 11th, 1909.

Dr. Houston came to Peoria when but five years of age, was educated in the public schools and practiced his profession thirty years in that city. He was of the type of dentists who became active and efficient in the time when dental colleges and societies were few.

Dr. Houston was an active member of several benevolent societies. A widow and two sons survive him, one of the sons, Dr. R. E. Houston, succeeding his father in the profession. He became a member of our society in 1897.

Dr. E. E. Davis D. D. S. Born in Yeovil, England, Feb. 19th, 1863. Died in Chicago, Sept. 10th 1909.

Dr. Davis was educated at public schools. Entered Chicago College of Dental Surgery in 1885 and graduated in 1887.

Member of Chicago-Odontographic Society of Chicago. Attending dental surgeon of the Evangelical Lutheran seminary and orphanage at Addison Ill., from which place he was returning when struck by a train, which caused his death. His wife and five daughters survive him. He became a member of our society in 1905.

Dr. B. F. Scott, D. D. S., Flora, Ill. Born in Virginia, Feb. 29th, 1872. Died Feb. 7th, 1910.

Dr. Scott was a Virginian by birth but reared and educated at Mountain City, Tenn. He studied dentistry at Knoxville, graduating from University of Tennessee.

He located at Flora, Ill., where he remained in active practice to his end. His passing away was the unfortunate result of a general anaesthetic administered for the extraction of an impacted third molar.

He was a member of several benevolent societies and prominent and beloved by those who knew him. Devoted to his profession and family. He leaves a wife and three little children. He became a member of our society in 1905.

Respectfully submitted,
Robt. Goebel,
F. H. McIntosh,
S. Finley Duncan,
Committee.

REPORT OF THE COMMITTEE ON LEGISLATION.*

BY C. R. E. KOCH, D. D. S., CHICAGO.

Dr. Edward H. Allen, President, Illinois State Dental Society.

Dear Sir: Your Committee on Legislation begs leave to submit the following report.

At the meeting of the Society held at Danville last year, just before adjourning, we reported that the outlook for early passage of the dental bill then under consideration before the legislature, was good. On May 28th, your Committee received the following telegram which we repeat in this report, as we feel that the distinguished, persevering and ceaseless efforts of Senator Albert C. Clark deserve special mention and recognition on the part of the Society:

"Dental bill passed house this afternoon with one hundred and twenty-one ayes. I congratulate the dentists' organization on their success. The nays were shown by the rimless circle."

Governor Deneen, in due course of time, approved the act and it became a law with his signature. The new law has now been in force since July 1st, 1909, and we desire to call your attention especially to the result of the registration clause, which for the first time in the history of our state dental legislation, is a feature of the law.

It will be remembered that the number of dentists registered with the secretary of the State Board of Dental Examiners approximated somewhere between eight and nine thousand. This represented the accumulated names of registrations during nearly thirty years. Everyone knew it was excessive and unreasonable, and yet there was no method by which the Board could eliminate any of these names without the danger of performing an unlawful or an unjust act.

The period for registration expired on the first day of May last, and resulted in the registration of three thousand eight hundred and thirty-seven names. Of this number there reside outside of the state, five hundred and fifty-nine; in the city of Chicago, sixteen hundred and sixty-six, and in the state of Illinois, outside of the city of Chicago, sixteen hundred and twelve. This establishes the fact that there are three thousand two hundred and seventy-eight legal practitioners of dentistry residing in Illinois. The number of those who formerly registered and went to other states exceeds those remaining within the state, and these men, excepting such as have qualified under the law, are debarred from again entering this state without paying a special fee for the privilege, while those who retain the right to practice in this state are now contributing to the support of the work of the State Board.

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*Read before the Illinois State Dental Society, May, 1910.

The work entailed on the Board to establish this new registration has been very great, but in the future it will be much easier by reason of the cleaning-out process during the present year.

Realizing that the weight of the counsels of the Illinois Board would be very much minimized abroad if two of the older members of the Board were to retire and be succeeded by entirely new men, your Committee, after consulting with several of the officers of the Society, and having obtained the approval of the president and the secretary, on November 19th wrote the following letter to Governor Charles S. Deneen:

"His Excellency, Charles S. Deneen, Governor of Illinois, Springfield, Illinois.

"Sir: We the undersigned, members of the Legislative Committee of the Illinois State Dental Society composed of eighteen hundred active members and practitioners of dentistry in the state, in behalf of this Society and its membership, most respectfully request you to make no further changes in the personnel of the State Dental Board as now organized. Each and every member of this Board has the full confidence of the entire dental profession.

"We especially request that Doctors Pruyn and Pritchett may be permitted to serve at least a year longer in order to look after matters that they are now engaged in especially developing. To withdraw their experience and ability at this time would weaken the Illinois influence exerted in National Dental progress.

"While we make this request in our official capacity as members of the Legislative Committee of the State Dental Society, we also desire to call your attention to the fact that individually we represent the three dental educational institutions of this state, and as such, we also most heartily invite you to postpone any further changes in the Board for at least another year.

"The uncertainty of the tenure of these two men has somewhat handicapped the progress of the special work in which they are engaged, and we should be greatly indebted to you if you could favor us at an early date with the decision you may make in the matter.

"We beg to assure you that we have no desire to ignore the high prerogative given you by the statute of appointing this Board, but our faith is that in all your appointments you wish to secure that which shall result to the greatest benefit of the people of Illinois, and this gives us warrant to offer this request.

"We have the honor to be

Very respectfully,
(Signed) T. W. Brophy,
Don M. Gallie,
Charles R. E. Koch, Chairman,
Legislative Committee.

We are glad to report that Dr. Pruyn and Dr. Pritchett are still serving and giving to the state the benefit of their experience as members of the Board, and we desire to express our belief that a proper acknowledgment to the governor should be made for acceding to the wishes of this Society, as expressed by its Legislative Committee.

The clause in the new dental law exempting dentists from jury duty in this state has in several cases been operative, courts having excused dentists from the performance of this duty when the provisions of this act were called to their attention.

At the present time we have no recommendation to make, excepting perhaps that some way should be devised, either through legislation or by consultation with the law officials of the state and of the several courts, to see that the funds derived from fines shall be made useful as the law intends, and that the Board may be relieved from the necessity of using its income from fees for the purpose of carrying on the prosecution of illegal practitioners. A large amount of the fines have been withheld from the use of the Board for this purpose by reason of legal technicalities, which are at the present time in process of adjudication by the supreme court. We would recommend that such aid as may be necessary be given to the Board by this Society, to secure the necessary presentation of the side of the dental profession with reference to these withheld fines, before the highest tribunal of this state.

Very respectfully yours,
Truman W. Brophy,
Donald M. Gallie,
Charles R. E. Koch, Chairman,
Legislative Committee.

THE SILICATE CEMENTS.*

BY GEO. C. POUNDSTONE, D. D. S., CHICAGO, ILL.

It is with a good deal of reluctance that I have been persuaded to present my experience with the silicate cements, from the fact that I am not an enthusiast and I realize the unpopularity of taking the negative side of any proposition that apparently gives such beautiful results when first used.

I was an enthusiast and have used Ascher's Enamel extensively, so the results set forth in this paper will be based upon that product, which is probably at least the equal of any of the silicate cements offered to the dentist today. The large number of fillings inserted, the varying conditions under which they were placed in the teeth and the careful application to detail in manipulation will I trust protect me from the charge of condemning a product without good and sufficient reasons for all of the unfavorable statements that I may make. When I say that I am not an enthusiast I do not mean that I do not use artificial enamel, for I do use it in certain selected cases, but not to the extent that I did, nor do I use it as a permanent filling material. I have fillings of Ascher's Artificial Enamel in the teeth of some patients that were inserted three years ago and they are in apparently as good condition today as when first put in, but to offset this I have replaced a large number of fillings that were inserted with the greatest care and attention to detail in manipulation because they failed in one or more of the points to be spoken of later. I do not believe that all of these failures can be laid to faulty manipulation because if that be true and success will not follow the care and painstaking efforts that I have expended upon it then it will never be a success with the general practitioner, nor can it be true that the conditions existing in certain mouths are entirely responsible for its success or failure because some of my greatest successes stand alongside of the ruins of my greatest failures, and in each of these instances the same amount of care was taken both in the mixing, and in the insertion of the material into the cavity.

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*Read before the Illinois State Dental Society, May, 1910.

The failures in these cases have been either a granular surface after a few months with brittle, fractured margins, a discolored filling which may be either slight upon the outer surface or may penetrate the entire mass, a heavy black line around the margin or extending into the space between the filling and cavity wall and showing through the enamel, disintegration to such an extent that the filling dropped out of the cavity, or the death of the pulp under the filling.

In regard to the manipulation of Ascher's Artificial Enamel I wish to state that the directions of the maufacturers and the demonstrators were followed as closely as possible and after each filling a detailed account of all conditions that might have an influence upon it were written down, the temperature of the room, apparent humidity, time of mixing, condition of the mass when inserted, rapidity of setting, instruments used in inserting and polishing and after comparing and studying this data for months slight advantage was gained, because with conditions apparently the same one filling would stand while others would fail.

It is claimel by the manufacturers that artificial enamel is a scientific product, an exact chemical compound. If this be true it cannot readily be a success with the dentist unless he also be a chemist. The general practitioner has but a limited knowledge of chemistry, extending no further than that acquired in the regular high school and dental college courses, while the practical, advanced chemical knowledge has been acquired by the few at such a cost in money, time and labor that its secrets have been carefully guarded. The manufacturer prepares a product in two parts which he sells to the dentist, who accepts it with little or no knowledge of what it contains and forthwith attempts to complete the chemical problem. If he succeeds it is an accident. If he fails it is because he does not fully comprehend all the details in the process he is trying to bring to a conclusion. If all the chemical combinations were in one part and the other part a simple element as in amalgam, then the dentist might combine the two parts according to a set of directions and secure uniform results, but in cements and enamels both parts are complex combinations in themselves and their union is dependent upon so many conditions as to temperature, humidity, method of mixing and manipulation that accurate results are not readily obtained.

If the manufacturer would take more pains to try to enlighten the dentist as to the chemistry of his product, how and why it combines as it does, and less time to instruction in the mechanical mixing, the dentist would be gaining knowledge from which both he and the manufacturer would profit.

I do not wish to be understood as condemning Artificial Enamel as a filling material, the beauty of which when properly placed can only be approached by the best porcelain inlay, but I do contend that ninety per cent of the dentists before me are having indifferent success; with from fifty to ninety per cent of the fillings inserted failing within three years and those fillings that were perfect after that time were accidental. That is, an exact chemical compound had been made and the dentist at the time knew not that he had made it. Such uncertainty is not conducive to the establishment of the public confidence in dentists and dentisty that we hope for, and while it may be a little easier money for the dentist at first, every failure will return to him as a boomerang. Artificial enamel should be used only in carefully selected cases, in mouths that are habitually clean, mouths in which the teeth are well shaped, secretions normal, no tendency to the formation of tartar, etc. It is in such mouths that the successful fillings I have made are all to be found and while all the fillings in such mouths have not been successful I think I may safely say that all of the fillings in carelessly kept, unclean mouths have failed or are deteriorating. This would seem to indicate that decomposing food particles in contact with the filling have an effect upon it and may be the reason why so many fillings become dark gray or slate color after a time. At first this gray or slate color can be removed by polishing, but in time it will penetrate the entire filling. Enamel fillings are contraindicated in mouths in which the saliva is large in amount, thick and viscid, because such mouths can rarely be kept clean for any length of time. From my observations, practically all fillings in such mouths are discolored. Fillings that show a heavy black line around the margin are invariably leaking. This may be caused first by a contraction of the material in setting or it may be that the material was not forced into perfect contact with the cavity wall, sometimes a difficult task, especially if one tries to push the material ahead of an instrument against a wall. It will usually draw away from the wall upon the removal of the instrument. A better way is to draw the plastic material against the wall with a wiping motion whenever possible, thereby tightly sealing the joint between material and cavity wall, not only at the outer margin but over the entire surface of the wall. This tendency to bridge over a space, especially over under cuts, is the cause of many of the black lines around the fillings, for a space cannot exist within a tooth without becoming filled with moisture from the tooth itself. Later this moisture filled space is sure to become discolored and show through the enamel.

Fillings that are discolored throughout the mass are porous to such an extent that moisture and debris can readily penetrate them. Why this is true is difficult to definitely determine, because with the same apparent degree of care in mixing and polishing some fillings will stand impervious while others will become quickly discolored. The demonstrators for the manufacturers will tell you that you used steel instruments, or used vaseline, or didn't wait fifteen minutes, or used a slab that had previously been used for oxyphosphate cement, but when all of these things have been carefully avoided still the same fault will be found in many fillings. Evidently there has not been a perfect chemical compound formed; consequently some element has not been satisfied and is soon washed out or disintegrated, leaving open the way for moisture and debris to enter.

The highly polished surface seems to be the ideal one but in some fillings it is impossible to get such a surface while in others it can be readily produced. The gelatin matrix, if it could be so applied as to make subsequent polishing unnecessary, would possibly give a surface that would remain impervious to moisture, but how can a matrix be so applied? The instant a polishing strip is drawn over the filling all the high gloss left by the gelatin is destroyed and conditions are the same as if no matrix had been used. The matrix can do no more than prevent a large excess of material at inaccessible places, and whether it be gelatin or celluloid can make no difference. The filling must afterwards be polished anyway, the same as an amalgam or a gold filling made with a matrix.

The low degree of edge strength is not a serious objection to enamel as a filling material, because there are so many cavities in which the margins are well protected that it can be used in such cases without danger to the margins were that the only difficulty. Careful judgment in selecting cases will obviate fractured margins.

It seems to be a pretty well established fact that pulps die more readily under enamel fillings than under gold or cement fillings. Whether this be due to some chemical poison in the material, I am unable to say, but be it as it may all such danger can be avoided by lining deep cavities in vital teeth with oxyphosphate cement.

I have painted a rather gloomy picture of this most beautiful of all fillings but there is no use in trying to deceive ourselves. It is a difficult material to work, as difficult as was the porcelain inlay. I do not believe that we have a perfect product as yet but I have high hopes that a product can be made and will be made that can be worked by the general practitioner of dentistry who has neither the time nor the opportunity to acquire an advanced chemical education..

Until such a product is placed in our hands my warning is to go slow, use the utmost care and judgment in the handling of the material and the selection of the cases in which you use it. Study carefully all the conditions in each case, be extremely careful as to detail in the mixing and insertion into the cavity, and then study the results in months and years, and thereby try to determine the causes in those cases that fail.

Do not discontinue its use if you have had many failures, but be more conservative and thoughtful, and the day may soon come when your conservatism and thoughtfulness will develop a product that will take first rank not only for beauty but for durability and permanence as well.

RATIONAL AND PERMANENT SURGICAL TREATMENT OF BLIND ABSCESSES.*

BY DR. R. H. PORTUONDO, MADRID.

GENTLEMEN: I trust to your goodness, and beg your indulgence, if I disappoint you with my address, and will ask you to put a little of the blame on the shoulders of your distinguished president, who although acting in the best of faith, has labored under a lamentable mistake in choosing me to read a paper before this Society. My friend, Dr. Quintero, scarcely realizes what a fix he has placed me in.

When your secretary, Dr. Patterson, solicited from me the title of my paper, I asked myself: On what shall I speak? Something original? I should have been glad to do so, but unfortunately, gentlemen, I have nothing original to bring before you. On some of those topics which are already under discussion in our profession? But I am the one amongst you all who knows the least, and more in need of instruction than able to give instruction. To speak at a conference before the American Dental Society of Europe may be nothing, but I would never have as much as dared even to dream of such a thing. However, as I find myself compelled to address you, I am here to do my best.

Searching my brain, I have found but one subject which is always new, one that may serve to give rise to a discussion which may tend to enlighten you more than my paper, and this subject is on the daily practice at our offices. The importance of a healthy and sound root you, of course, all know. The treatment of the roots of teeth is a suggestive theme and has always attracted me from the time that I commenced my professional career. It appeared to me to represent such an important factor that I waited, fully expecting to see it made manifest, and play the most prominent part, in the art of modern dentistry.

The conviction Dr. Marshall felt about the gold filling when he said "any tooth that is worth filling at all is worth filling with gold," is the conviction I have when I say that any root that is worth treating at all is worth treating properly.

We all have often admired beautiful pieces of work in the form of fillings, crowns, and bridges, which were nevertheless failures because their foundations, their roots, had not received proper attention, and all the merit of the artist, all that show of extreme ability, remained obscured for want of knowledge, of conscience, or what is worse, negligence of the operator. In the book published by Dr. Broomell of Philadelphia, fifty-one different procedures are contained, and yet we are not happy, as Dr. Callahan says. What is there strange, therefore, in my attempting to lay before you one more, which assuredly is not new but which is, in my rather long experience, the one that has so far given me the most satisfactory and best results?

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*Read before the American Dental Society of Europe, March, 1910.

How many roots are considered cured when the symptoms of periostitis have disappeared, but which nevertheless are not? To prove this one need only press slightly with the fingers over the extremity of the buccal roots of the upper molars, or over the mesials of the lower. One would probably then notice, besides a certain purplish color of the gum, a slight tenderness to the touch. It is in connection with these roots principally that the treatment that I am going to expound to you is most valuable.

According to Callahan there are about sixty-six roots in the human arcade, twenty-eight of which are usually large and straight, and can be treated with relative facility, while the other thirty-eight are, as says my dear friend, the indispensable secretary of this Society, "La Bete Noire" of our profession.

Many, indeed very many, have there been, who have written on this subject, but scarcely in any have I found ideas which have assimilated so much with my own as those in Dr. Burchard's magnificent text book on Dental Pathology. Some years ago, I am not able to state exactly where or the date, Dr. Callahan read a paper on the treatment of roots with open fistulas, and proclaimed the procedure of pumping as the most sure means of injecting the disinfectant liquid through the fistulous tract. The procedure which I have the honor today to lay before you is not original, as I said before, but based on that of Burchard's and Callahan's.

The greatest difficulty with which we have always been struggling in the treatment of the buccal and mesial roots of the molars, consists in their form and size. It is difficult, and I venture to say almost impossible, for the most skillful operator to be in every case scientifically certain of having removed from the canals of these roots (when they are tortuous and crooked) all the detritus contained in them. Neither the process of Callahan, of the sulphuric acid, nor the assistance of the "Gates Glidden," always dangerous, even in the hands of experts, nor any other means, have ever given positive and satisfactory results. I presume that someone will raise as an argument against it the suffering of the patient, but, gentlemen, are we going to have in mind solely and exclusively the fact that the patient may suffer, or are we going to accomplish our professional duty before God and man? Of course it is clear that it is our duty to avoid as much suffering as possible; but above this duty, according to my judgment, is the other.

Now I am going to explain to you the procedure which, if it interests you, and you consider it rational, you may give a trial. I intend to be brief.

First of all, upon opening the cavity, bear in mind not to enlarge the entrance too much, only sufficiently to get to the pulp chamber and lay open the entrance to the canals. In this condition, apply the rubber dam, and, drying the cavity, commence the removal with a very fine Donaldson nerve broach, of all the contents; then immediately, with the same broach, take a small quantity of the preparation sodium and potassium. The action of this I will not enter into at present, as I suppose you all know it, but I wish to call your attention to the fact that such a preparation enlarges also the canals. I do not know whether this is brought about by the rubbing or friction of the broach, as Dr. Simpson of Richmond (Virginia) says, commenting on Dr. Callahan's procedure, or whether it be from the medicament itself.

When I am satisfied that I have done the best to remove and change the condition of the residue in the canals, with the use of the sodium and potassium, I drop into the pulp chamber cavity a few drops of perhydrol, manufactured by E. Merck of Darmstadt, a colorless liquid preparation of neutral reaction, and, according to the manufacturer's statement, containing thirty per cent of bioxid of hydrogen, which in its decomposition gives out 100 volumes of active oxygen. I use it pure. According to the manufacturer a solution of three per cent is equivalent, as regards its antiseptic properties, to a solution of bichlorid of mercury at 1/1,000.

With the same object for which I use the perhydrol I also use sometimes a preparation of peroxid of hydrogen, called "Pergenol." It comes in the form of a white powder, and is prepared by the firm of Heinrick Byk of Berlin. In filling the chamber and canals with these powders, a drop of tepid water should be used, as cold water does not dissolve them, so as to produce an effervescence. The Pergenol, according to its inventor, consists of a mixture of biborate and bitartrate of sodium.

There is another preparation, also in the form of powder, called "Abion Dubois," a perborate of soda, that I formerly used a great deal, but I have now substituted for it the two substances previously mentioned, believing they produce a greater effervescence.

As I was saying, the perhydrol or the pergenol, on being placed in contact with the organic matters, produces an exhalation of oxygen accompanied by great effervescence, somewhat like, but probably to a much greater extent, that produced by sulphuric acid when brought into contact with bicarbonate of soda. By this property one succeeds in bringing up to the surface the residues of decomposed pulp which might otherwise remain in the canals.

By means of hot air the canals can be well dried, and if the inflammation of the periosteum is not very great, I introduce into the canal very loose threads of cotton soaked in Buckley's formula—Para, Ortho and Beta Cresol, and formol forty per cent (or formalin), in equal parts. If the inflammation is great, then only pump the Tricresol with the aid of a Donaldson's broach, and leave the canals open, simply introducing a small plug of cotton wool into the cavity of the tooth, but without exercising any pressure, so that the gases, which might still exist in the roots, may escape through the pulp chamber, and not by the apical foramen, giving thereby occasion to the periosteum to rest and recover. If the precaution is taken not to pass through the apex, it is certain that on the following day all the symptoms of periostitis will have disappeared.

Thus far it will be seen the treatment, with slight modifications, is the same as that followed and recommended by all those whose treatment of teeth with infected pulp have been successful.

Permit me now, previous to entering on what we may call the second part of this paper, to quote the words of a master, whom undoubtedly all of you respect as much as I, viz., Dr. Burchard, who says: "Cases of blind abscess may be treated without making an artificial fistula, but the results are rarely so satisfactory, and seldom so complete as when an artificial opening is made."

In the second sitting of the patient, which may be on the following day, if so wished, one commences by injecting a little cocain, or any other local anesthetic (I prefer alipine three per cent) into the gum corresponding with the apex, and with a very fine and sharp lancet make an incision until it touches the alveolar process, piercing this through with a round bur No. 6, until reaching the extremity of the roots. The gums corresponding to the palatine of the uppers, and lingual mesials of the lowers, I seldom open, and indeed I do not remember one case of trouble. It is probable that the liquid injected into them may get out through the previous opening made on the alveolus.

As soon as the bleeding ceases, and for this a little chlorid of adenalin can be successfully used, apply the rubber dam, and dry the roots well with hot air, introduce into each canal a small wick saturated with pure phenic acid and fill the cavity with a piece of raw rubber such as is used in our laboratory for the construction of plates, but of a little larger size, proceeding with a round pointed instrument to the pressure, or to what Dr. Callahan calls pumping. It is probable, in fact almost certain, that after a few pressings, the carbolic acid will come out through the opening of the gum. This pumping, which before the first treatment with sodium and potassium, tricresol, and the perforation of the alveolar process, would have given rise to a severe attack of periostitis, does not now have this effect, owing to the destructive action upon the bacillus of the first cure, and also the phenic acid, in evacuating, draws out all the contents of the root canals. It may happen that the incision in the gum might show a tendency to close up, and to avoid this I advise filling with a gauze ribbon saturated with Peru Balsam.

I recommend you to persist in the pumping in the first instance, as well as in the successive ones, until you are absolutely certain you have seen coming out through the gum the liquid injected into the canals. If you do not take this precaution you may be exposed by the pressure to the danger of an attack of periostitis, partly from traumatic disposition, and partly infectious, through some microorganisms which might have survived the disinfecting treatment.

This cure with carbolic acid I repeat three or four times every other day, and afterwards twice, with a preparation of thymol, eucalyptol, and glycerin, and proceed immediately to the filling of the canals.

Before finishing I wish to call your attention to the difficulty in pumping into teeth which have not their four walls complete on all their surfaces, or in cases in which only the roots are left. To obviate this difficulty, construct a metal ring which adjusts itself exactly to the circumference of the tooth or root to be operated upon, a little narrower on the part opposite to that which corresponds to the gum, and sufficiently high to form in a manner a truncated cone. With this ring in place, the pumping becomes very easy.

Now, gentlemen, allow me to ask you: Does any doubt remain within your minds on this rational treatment? According to my judgment these canals, previously full of detritus, saturated with legions of micro-organisms of all kinds, will become completely clean and disinfected at the same time. I will conclude by venturing to recommend this treatment for all cases of infected canals in the molar teeth, having, or having had symptoms of periostitis, believing it to be the most efficacious.

Nothing remains for me now but to thank you for the courteous attention you have given me, and to beg your indulgence when judging this unpretending paper, and to trust that my modest experience may in some case be useful to you.

PYORRHEA AND ITS RATIONAL TREATMENT.*

BY B. KRITCHEVSKY, M. D., D. D. S., PARIS.

Pyorrhea alveolaris is the one disease that particularly forces itself upon our attention. It is the disease that is the most difficult to cure, and the most trying to encounter in our daily work. It often forces us to the conclusion that we are without remedy against it, and to the anxious questioning of our patient we have often to answer that the only sure cure lies in the forceps, and subsequent replacement of the teeth by artificial means. Since time immemorial this disease has been in existence. Only lately I saw evidences of it in the jaw of a prehistoric man, found in Heidelberg, who lived many thousand years ago.

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*Read before the American Dental Society of Europe, March, 1910.

Since investigators in medicine and dentistry commenced to write about the different afflictions to which the mouth of man is subject, they have never failed to devote a due share of attention to pyorrhea alveolaris, often giving this disease different names. There has never been a time when somebody was not advancing some method of treatment, or advocating remedies purporting to arrest and cure the disease—yet today we are apparently as far as ever from knowing the secret of its causes, or the treatment best adapted to it. I do not believe that there have ever been two men entirely of the same opinion about the question, but reviewing all that has been said and written about pyorrhea alveolaris, it seems to me that we have logically come to the following conclusion: pyorrhea alveolaris is a local manifestation of a general diathesis; pyorrhea alveolaris can often be attributed to only a local cause, without any possibility of finding any systemic predisposition; but pyorrhea alveolaris can never be brought about by systemic predisposition, when the local conditions of the mouth are such as to oppose the formation of the most necessary attributes of pyorrhea—tartar, uncleanliness, general uphygienic conditions, faulty articulation, etc.

Let us see how pyorrhea alveolaris is generally brought about—what is the process and the pathological transformation?

First the predisposition for the formation of tartar; the tartar present, by a constant irritation, causes traumatism, a chronic inflammation. We know that of all parts of the body, the mouth is the most appropriate for the cultivation of microbes and especially pus forming ones. When the resistance of a tissue has been weakened by this irritation and consequent inflammation, it can no longer fight against the intrusion of microbes, and then we commence to have a process of chronic necrosis, which goes deeper and deeper. When the most resistant parts, the dental ligaments are destroyed, then the progress is much quicker. The formation of pockets takes place, where the microbes are no longer disturbed, either by mastication, which mechanically cleans the teeth, or by the brush, which can no longer reach them. When the periosteum is attacked, the tooth becomes looser and looser until in course of time it inevitably has to come out.

Generally, the subjective signs of this affection are a constant irritation, without any great pain, except in some cases, where, for some reason, the secretions are retained in the pockets and an acute inflammation sets in, which results in the formation of an abscess.

From such a conception of the causes and development of this disease, logically depends the treatment. We have to get to the origin, to the initial cause of the affliction, whether general or local, and by suppression of it, the cure naturally follows.

We cannot treat the general causes. First, they are out of our domain—nor is it often an easy thing to do. In fact, there is no record, or very few, of anyone's effecting a cure of pyorrhea alveolaris by a general treatment. But the local causes are present, and these we can fight against, and we have all seen cures result therefrom.

Of all the numberless methods of treating this disease, the one universally conceded to be the best is the suppression of all irritation around the tooth, scrupulous hygiene of the mouth, and constant care to avoid all those things which tend to cause a reappearance of the disease.

Until quite recently, the only method that gave positive results was the surgical one, such as the one of Dr. Younger, for instance, which, in the hands of a skillful practitioner who had acquired an extraordinary sense of touch in detecting the least little particle of tartar remaining, required hours to complete the task in a satisfactory manner, which if thoroughly done gave a complete cure—a most gratifying result to both patient and doctor. All medicines used collaboratively were useless when mild, and often harmful when too strong—and, anyhow, useless without a scrupulous scraping.

Over a year ago, this state of affairs changed. Joseph Head, of Philadelphia, made known the action of hydrofluoric acid on the tartar. Immediately its use was adopted by a great many, and numerous favorable and even enthusiastic reports were made concerning it. I began to experiment with this acid, and was at once astonished by the results obtained. However, I soon came to the conclusion that the liquid that Joseph Head recommended was too strong and caustic in the mouth, and limited myself to the use of the salt, which is a derivative of the hydrofluoric acid, by neutralizing it by carbonite of ammonia, which resulted in white odorless crystals, not caustic, and having the taste of lemon juice. It can be used freely in the mouth, causing no pain, and at the same time accomplishing all that the acid does.

As to *destruction* of the tartar (I use the word "destruction," not "dissolution," purposely, as you will presently see), Joseph Head stated that this hydrofluoric acid dissolved the tartar, and looking at the action of the acid on the tartar, it seems as if it does. And what is more wonderful yet, the tooth, which is of the same chemical composition as the tartar, is not attacked by the acid. But my experience in the laboratory—and in fact chemical science itself shows that there is another process going on. The tartar is composed, in its greatest part, of calcium phosphate seventy per cent, calcium carbonate and calcium fluoride. When we act on the calcium salts by the hydrofluoric acid, or by its derivative, as for instance the biflorite of ammonia, the calcium salt is not dissolved, in the real meaning of this word, but a chemical reaction is going on and is forming an insoluble salt, which is calcium fluoride. So there is no dissolution of the tartar, but a chemical transformation of the tartar. This new composition takes the form of a brittle substance, which upon being touched falls into an impalpable powder. This explains why very often, after the first treatment or the first application of the salt to the tartar, the tartar is still present in a very brittle state. This probably explains the fact that surprised Dr. Joseph Head and the other experimenters—that the tooth is not attacked by this acid. But it may be also held that the tooth, being of a texture much more compact than the tartar, the bifloride of ammonia does attack it, but on its superficial surface only, resulting in the formation of an insoluble layer of calcium fluoride, which afterwards protects the tooth from the further action of the acid.

By using the bifluoride of ammonia, to which, for the sake of convenience, I gave the name of "Fluoram," the most astonishing thing in its use is its quickness of action on pus. Nearly always the pus entirely disappears after the first application, and its effect on the gums and on the soft tissues in general is noticeably good. The gums quickly revert to a natural and healthy appearance. This fact leads me to suppose that this salt, in addition to its efficacy in the destruction of tartar, has probably a very strong bactericide action, and with the help of a friend of mine, Mr. Frouin, of Pasteur's Institute, Paris, I undertook a number of experiments to determine this bactericide action. We took sublimate as a standard, and we acted on pyocyanic bacilli and subtilis, which are formed in the hay and are the most difficult to destroy, as they continue to live in a temperature even of 110 degrees centigrade. We found that the medium wherein these bacteria are generally cultivated was not appropriate for this work, as it was composed of albuminous matter, and this albuminous matter was coagulated at the same time as the bacteria, in this way forming a layer which prevented the antiseptic from acting beyond a certain depth. Mr. Frouin found a medium of aqueous matter, and in this medium the cultures were made. He found that Fluoram, in comparison with sublimate, acting on pyocyanic bacilli, is fifty times less active, and on subtilis, twenty-five times less active. This should at once discredit its antiseptic action, and not explain its extraordinary action on the gums, but here are the other facts to be considered. When we use any antiseptic, such as sublimate, carbolic acid, formoede, etc., on the living tissue, we at once not only kill the microbes but also act on the cells and, as they are composed of albumen, generally coagulate them. A layer of coagulated albumen is formed, which stops the further action of the antiseptic, and under this layer the microbes, and especially the aneorobic, of which so many are found in the mouth around the teeth, go on developing and continue the inflammation and destruction of the tissues. To get rid entirely of the microbes with any antiseptic, we have to destroy all the tissues in which the microbes are present, and when the remaining healthy cells begin to separate themselves from the dead ones, then only does the process of healing commence.

Fluoram is the only antiseptic which destroys the microbes and does not at the same time destroy the living cells. Attention and study were given to this fact long ago in the case of sodium fluoride, which acts in the same way as bifluoride of ammonia, and it was found in a two per cent solution, that the action of the diastase was not destroyed, but even increased. To stop this action, as for instance in beer, you have to use immense doses, and even then the diastase is not destroyed, but only arrested, as is shown as soon as the sodium fluoride or bifluoride of ammonia is removed, when the diastate will once more take place.

The blood remains indefinitely incoagulable in the presence of bifloride of ammonia, but the fibrine and fibrinogene are not destroyed and will again coagulate when the bichloride of ammonia is taken away from it. This fact, it seems to me, explains the action of this salt on the soft tissues, which destroys the microbes, leaving the cells of the tissues in a healthy state and once more in proper condition to assume their natural function and fight against the disease.

I am sure that if this salt is tried on any infected wound or ulcer it will give surprising results.

Fluoram or bifluoride of ammonia is used very freely, and is introduced into the pockets around the teeth by a wet canal bristle. All the teeth can be treated at the same sitting. For about a half hour there is a little pain. The sensitiveness of dentine seems to diminish under the influence of the preparation.

PORCELAIN CROWNS, USING FACINGS AND PROSTHETIC PORCELAIN.*

BY DR. GEO. B. STEWART, LONDON.

Mr. President, Gentlemen:

We all have at times cases of bicuspid and molar roots upon which we would like to put porcelain crowns, but find that the width and length of the space to be filled makes us give up all idea of building up a porcelain crown, because of the time and close attention required, where high or even moderately high fusing porcelain is used.

A vulcanite tooth soldered to a cap and built up with porcelain makes a good crown in such a case, but if extra width is made, namely, bucco-lingually or mesio-distally, it is quite sure to give rather a peculiar character to the tooth. In these days of excellent casting machines, we are tempted to turn to them to help us out of all sorts of difficulties. Many operators do not cast porcelain-faced Richmond molars and bicuspids, because of the large amount of gold to be forced against the facing and the great danger of checking it.

It is a well known fact that in the case of any very high fusing porcelain, such as Consolidated, by fusing a facing with the body of that same make, a most intimate union is made; in fact, it is not a joint, but the facing and body are become one. It is true that that same condition applies to lower fusing porcelains, and certain teeth, namely, those supplied by Ash's or The Dental Manufacturing Co., do form a perfect union with prosthetic porcelain. In making crowns of high fusing bodies when facings are used, excessive care must be taken, or it will be found, perhaps a year or two after, that the body was not handled as carefully as it might have been, and quite likely we will find that air spaces existed, even down as far as the pin, bubbles that had not worked out to the surface of the porcelain.

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*Read before the American Dental Society of Europe, March, 1910.

Practitioners who have not been able to secure assistants who could adapt themselves to the nerve strain working of porcelain (for to an assistant it is most anxious work) find themselves very frequently in a very tight fix, when they want to turn out of their porcelain department a particularly nice looking crown, that is to be placed in the mouth where it will be conspicuous. The length of bite appals him, and the idea of building up an all porcelain crown seems to be quite out of the question, for he cannot perhaps give it his personal attention.

A Logan crown with cap attachment is in many cases resorted to, or a tube tooth with cast cap, or some other may be used, and very frequently when the patient leaves, the operator is not as satisfied with his piece of work as he would like to be, for the reason that perhaps the contour or some other point might have been improved upon. I suggest that the two facing crowns may come to your assistance in many such cases.

If a facing on the buccal surface soldered to a pin is quite strong enough to stand the strain of mastication, with the balance of the crown finished up, with some high fusing porcelain or prosthetic, if it could be made to stand up with these bodies, surely two facings, one on the buccal, and one on the lingual side, with porcelain properly fused between, would make quite as strong a crown, and in many cases a more anatomically correct looking tooth.

The difficulty as regards color, of course, would be overcome by securing a facing of correct shade, which would be a great weight off the operator's mind, then the shape of the tooth could be determined by grinding and perhaps beveling the facing. The lingual facing will be treated in the same manner and set up properly.

One of the first precautions is the arrangement of the pins to which the facings are to be soldered. In the first bicuspid it is a good plan to stand a piece of platinum wire up between the pins in cap and attach it with platinum solder or pure gold, then the buccal and lingual pins can be ground down to allow the facing to be put in proper position on the cap. In molars the same mode of procedure obtains, and the facings can be fixed without difficulty.

The facings are waxed to the cap in the usual way and invested and soldered with platinum solder (or pure gold if prosthetic porcelain is used). They can then be ground if any overlapping edges occur at the cervix, where it is so necessary for the surface to be smooth and the space between the two facings is filled with porcelain and baked.

The First Baking. The body is packed in and tapped thoroughly, care being taken to put in sufficient body the first time, to allow of bridging the fused porcelain. Great pains must be taken in this first placing in position of the porcelain. A small amount is placed wet with water, containing a small amount of gum tragacanth, between the facings at the base and on the cap to allow the operation of fusing to make the facings and cap homogenous. The case is then tapped and the water as it comes to the surface carefully removed with blotting paper. When it settles into position, as it is meant to do with the repeated tapping, more body can be added with spatula or sable brush. The amount of porcelain put on at the first baking should come up to the pins and the facings in a pyramidal manner, so that except at the cervical edges it would not come out to the width of the facings themselves. This will insure that in shrinking it will shrink towards the cap and towards the pins.

The Second Baking. The case can now be built up full size with the colored porcelain required, and again tapped thoroughly and packed, and also superfluous water removed, in order to assist in the settling which takes place when it is fused. Care should be taken in carving this time, before it goes into the oven, for the contour is made, the sulcus or sulci formed, the mesial and distal ridges built in, and when it is baked they will not be obliterated as is usually expected to happen with prosthetic porcelains.

The Third Baking. With ordinary care this should be the last baking. The crown is tried in the articulator to see if any touching up of contour is needed, and if the occlusion needs improving with a stone, etc. A small sable brush will put on the finishing touches which are tapped till a gloss appears which is quite necessary in this baking.

While high fusing porcelain leaves little to be desired in making all porcelain crowns, I think that there is room for the two-facing crown, using prosthetic porcelain, as the facings are made on this side of the Atlantic, and nearly everyone has a large selection of them, this being a great convenience.

A CASE IN PRACTICE.*

BY N. S. JENKINS, D. D. S., PARIS.

During my residence in Paris I have been occupying myself largely with studying the conditions under which porcelain bridges may be regarded as indicated. The result thus far leads to the inference that, for ideal restoration, they are almost invariably indicated. It is, of course, not practicable always to undertake the ideal method in actual practice. It is only the exceptional practitioner who can demand of his patients that they submit to the sacrifice of time and incur the expense of absolutely ideal operations when, in simpler ways, a sufficiently good result can be obtained; but, in the interests of progress, it is important that ideal methods of restoration should be evolved, and then their application may be left to the judgment of the individual dentist. Indeed, the construction of a perfect porcelain bridge is so complicated and requires so much experience, such patience and such confidence in the value of the system, that it may well constitute in time a new specialty in dentistry.

For the moment I only beg to say that, aside from esthetic considerations, the porcelain bridge is justified by its sanitary superiority. It can be kept more easily and more perfectly clean than any metal bridge, and is better tolerated by both the hard and the soft tissues of the mouth. But, however beautiful and however sanitary a porcelain bridge may be, it is of little value if it is not stable. Various distressing accidents have caused me to revise my original theories, and forced me to resistless conclusions. I now believe that a porcelain bridge can be successfully made in almost any position, but the methods are too involved and various to be mentioned in the time at my disposal.

The case I wish to present to you is interesting for two reasons. One is the admirable results obtained in treating long standing abscesses with tricresol-formalin. By use of this agent, the chronic abscess in the upper left second bicuspid root, and also a much more complicated condition of suppuration occasioned by the left lower third molar, were seemingly completely cured.

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*Read before the American Dental Society of Europe, March, 1910.

The second point of interest is the improvement in stability in both the bicuspid root and the third molar through the bridge. I have repeatedly observed that infirm roots, as in both these cases which I am presenting to you, even when serving as an abutment of a bridge, after thorough treatment and rigid attachment through the bridge to a firm abutment, rapidly improve in condition. They seem, indeed, far less liable to recurrence of disease, as, for instance, to pyorrhea than when they were not fulfilling their normal functions. I have, therefore, been led often to retain in a complicated bridge a frail root, which seemed of itself of little value, and found it to serve in time a useful purpose.

These two bridges, which are in the mouth of a colleague who has kindly consented to allow you to inspect them, illustrate both of these points admirably. The left side of the mouth was useless until restored by the bridges and, under the circumstances, it is questionable if such healthy conditions could have been obtained except with porcelain. The attachment of the upper bridge is with a platinum iridium cap upon a firm molar and with a cap and two pins of platinum iridium upon the frail bicuspid root. The attachment of the lower bridge is with a similar cap about the frail third molar and by a pin extending into the root of a lower bicuspid and with an inlay in the crown of the same tooth. Thus each bridge had one firm and one frail abutment. Very quickly under use both abutments became equally firm, until now, after a year's use, the patient is unaware of any sensation to indicate that a diseased condition had ever existed.

They are built, as you will see by the models of the upper bridge, upon the same system. The pins have an alloy of thirty per cent iridium. The backbone of wire has twenty-five per cent, since a higher percentage is too difficult to work and too liable to break when bent at a sharp angle. The caps are of ten per cent, and the half cap connections are of twenty per cent. These proportions give the most practicable results. The backbone is soldered to the molar cap, both in the crown and at the side, and to the pins and cap of the bicuspid. The bicuspid cap is stamped to fit the beveled root. The connected half cups are soldered to the molar cap and the backbone and to each other, and you will see that the shape is such as to give the greatest strength to the skeleton, and at the same time to provide a space into which the prosthetic porcelain is melted, and where it is held securely, adding greatly to the resisting power of the porcelain crowns which have been soldered to the back bone. In case of a close bite, these half cups are replaced by full cups into and over which porcelain is melted and carved to form the crown, or capped by segments of porcelain crowns, which are afterwards ground to occlusion.

Especially in a porcelain bridge, accurate fit and great strength are necessary. For these purposes, a porcelain which fuses below the melting point of gold is desirable, since warping of the platinum iridium base is possible with a higher temperature, and the different percentages of iridium are essential, together with various methods of combining them, to obtain the necessary strength.

You will observe a platinum iridium and porcelain molar crown on the right side of the upper jaw. This was also a desperate case, as the palatine root was detached from the buccal roots, but it gives hopes of long continued usefulness and is completely sanitary.

CAST GOLD INLAY SUGGESTIONS.

BY ARTHUR E. PECK, D. D. S., MINNEAPOLIS, MINN.

A practical study of any subject usually develops a few more or less original methods which seem to improve or shorten the work. If the suggestions which I submit here assist some in the profession to accomplish better results this article will have served its purpose.

To obtain uniform results with the cast gold inlay system one must follow carefully the details of each step of which the first of importance is cavity preparation. The best plan to adopt with this is to select some good system and learn it well. It is the key to success.

Next in importance is the impression of the cavity. To obtain this easily heat an instrument in a flame and insert it in the base of a wax cone. Hold it over the flame until it is thoroughly warmed but not melted. When it responds easily to the pressure of the fingers force it into the cavity and with a suitable instrument remove the surplus wax and obtain the correct occlusion. Adapt it to the margins by drawing a thin smooth linen strip around the inlay, forcing the wax against the tooth.

One of the most difficult steps in this work is getting a perfect impression of the root canal and crown abutment. To do this easily cut a very thin strip of No. 28 or No. 30 platinum, long enough to reach to the bottom of the root canal and into the crown. Twist it slightly so that it will retain the wax when it is removed from the canal. Arrange the length of the platinum so as to allow the crown to be placed in its proper position. Then cover the base of the crown with a wax impression cone, heat the end of the platinum strip and insert it through the wax into the opening in the crown. It may be well to heat it two or three times to insure the wax flowing perfectly into the opening.

If you desire the wax to extend up on the side of the tooth and over the root it would be well to make a band of gold which should extend at the proximal surfaces high enough to crowd the wax to place. Before placing this band on the root it should be perforated on each side with a hole large enough to admit of the sprue-wire being placed in the wax through the opening. Now place the band on the root and force the crown with the wax on the pin into the band and to its proper position. This will give a correct impression of the root canal and abutment. When it has cooled remove and separate the tooth from the wax, using a pair of forceps.

In this class of cases the wax for the support of the sprue-wire is often too frail to admit of it being inserted firmly. When this is so, add sufficient wax to give it a firm support; otherwise the inlay might be broken off while being invested which would mean a complete failure.

Another important step is placing the wax model the proper distance from the end of the ring. (It requires greater pressure to force the gases through a half inch of investing material than it does through a quarter of an inch.) If we always set the wax model a definite distance from the end of the ring we can soon tell just what pressure is necessary to force the gold to place, the larger the inlay the greater the pressure required. To make a guide which will enable you to do this cut a piece of sheet brass long enough to extend across the end of the ring and in the center allow a projection to extend down one quarter of an inch. Arrange a screw in the bottom of the sprue-holder or hold the wire in position with wax and raise the model until it just touches the tip of this projection.

If you are casting with steam pressure your ring should be nearly red hot before setting the case on the machine and avoid direct drafts of air on the case while casting. Do not trip your machine until the gold clears up from the bottom and dances in the crucible. Use a jeweler's magnifying glass (with a spring going over the head) to detect projections which may be on the inlay and would prevent it from going to place. Always polish the margins of the inlay after it is set.

Use a white cement to set all inlays in the anterior teeth. This will avoid the darkening of the tooth. For cavities in the anterior teeth where the inlays will show plainly use an alloy of platinum and silver which will make a very light colored gold, the inlays being scarcely visible at certain angles. They resemble closely the old platinum and gold fillings.

PROCEEDINGS OF SOCIETIES.

ILLINOIS STATE DENTAL SOCIETY MEETING AT SPRINGFIELD, MAY 17-20, 1910.

Discussion of Report of Committee on Legislation.

Charles P. Pruyn, of Chicago:

I am very glad indeed that the chairman of the Committee on Legislation has made such an admirable report. The Board has been doing some arduous work during the last year, and the secretary's office has been a very busy place. We need the support of the dentists of the state. We have now registered 3,278, but are satisfied that there are quite a number yet who are not registered. If we can have your assistance in obtaining the names of those who are not registered, it will help us in the administration of the law. The new law which requires a registration of all legally qualified dentists has brought to the notice of the Board the fact that a number of men have been illegally practicing dentistry in the state for many years. The proper disposition of such cases has given us a great deal of work and there still remain several cases that require our attention.

There are still a few dentists who have not responded to the request to register according to the new law and they will now be obliged to pay a fine of twenty dollars ($20) for their neglect. I suppose you want to know something about reciprocity. For the last ten years the cry for reciprocity has come up from all over the country. We have had reciprocity with some of the states for several months, and as a result sixteen men have gone out of this state, and six or seven have come in. We find that if the matter is handled properly it can be of much benefit to many deserving persons, but if not, it will be of special benefit only to the peripatetic advertising sharks. In many states the requirement is made that the man to have the benefit of reciprocity shall be a member of the local society and of the state society. We think this a very valuable provision, and we think it should be provided for in this state by statute. If a man comes to us and wishes to have a certificate which he may present to some other state, we mention that he has been a legal practitioner for five years or more in Illinois, and is, or is not, a member of his local and state dental societies. Then when that certificate is presented to Ohio or some other state board, if he cannot show membership in a local or state society from which he came, the board of that state very naturally thinks that if he is not a member in good standing of his home state, he would better go back to the state whence he came, as it does not wish to have its state made a dumping ground for undesirables and incompetents.

There are many things along this line you ought to be interested in, and should be cognizant of the work your board is doing to protect the dental interests of the citizens of the state. If anyone has an idea that it is a sinecure to be on the board, I will be glad to resign at any time in his favor. There are some changes we would like to make in the law. An annual registration would be much better than a biennial one. As a biennial registration does not furnish funds sufficient to enforce its provisions, while an annual registration would do so. Many of the surrounding states have an annual registration that works out very satisfactorily and furnishes money sufficient to enforce the law and to prosecute the offenders.

Dr. Koch has told you something concerning $2,500 of our funds in the hands of the municipal court of Chicago. Two or three years ago municipal courts were established in Chicago, and since that time all suits for infractions of the law have been adjudicated by that tribunal; and all fines that should have been paid to the board for its maintenance have been held by the court. Our dental law distinctly provides that no money from the state funds shall ever be used to carry out the provision of the law, and that all fines paid for infractions thereof shall accrue to the board for its uses. But in spite of this explicit provision the municipal courts are holding our money, contrary to what the board considers a legal right to do so. Some other state boards are in the same predicament, and are united with us in using legal measures to fight for our rights. The final results are conjectural.

At this morning's session the question of preliminary education came up. We, as a board, are considerably interested in preliminary education. We believe we are teachers as well as the gentlemen who are members of the faculties of the three great colleges of the state. We see some evil effects of poor education. To begin with, we want the men who come to us to have an education sufficient at least to read and write the English language fairly well. I hope it will be some little time before we take the advanced stand Minnesota is seeking in the way of having one year of academic education after passing through the high school. Let us enforce the present laws regarding preliminary education before attempting something more stringent. At the present time we have in the high schools an elective course. The student looks over the curriculum, and selects certain studies that will give him the requisite number of counts with the least amount of labor. He comes to the dental school frequently without the slightest knowledge of Latin, and is handicapped all through his professional career. You know, a man should have some knowledge of Latin, physics, chemistry and biology before commencing to study dentistry. I hope you will assist your state dental board in requiring of the colleges a more strict compliance with the rules of the board, and their own rules also, regarding the preliminary educational requirements of their matriculates. From my experience as a state examiner I am convinced that it is the thing to do before attempting to raise the standard any higher.

At a meeting held at Old Point Comfort last August of the National Association of Dental Faculties and the National Association of Dental Examiners a committee of five from each of the above named associations was appointed, and a little later a committee of five from the National Dental Association was added, making a committee of fifteen, to be known as the National Dental Educational Council, whose duties shall be to consider dental educational matters in general, and report the same to the National Dental Association and the whole profession. It is the hope and expectation that this committee, representing all parts of the United States and all the different interests in the profession, will by its united wisdom evolve a plan that will work out to the unification of the curriculum in the various schools, and that the yearly courses of study will be more in harmony with each other, so that if, for good and sufficient reasons, a student wishes to be transferred from one school to another, it may be done without seriously affecting his standing or retarding his graduation.

The American Medical Association has a similar committee and is doing very good work in stimulating weak colleges to strengthen their forces. As a result of the report of that committee in Chicago a few months ago, several medical colleges have gone out of existence or have been consolidated with stronger ones, and the cause of medical education has been very materially strengthened. We hope for the same result in dentistry, as soon as the committee has time to formulate its plans and to put into execution its power of moral suasion.

THE AMERICAN DENTAL SOCIETY OF EUROPE, THIRTY-SEVENTH ANNUAL MEETING, AT PARIS, MARCH 25-28, 1910.

DISCUSSION OF THE PAPER BY DR. PORTUONDO, ON "RATIONAL AND PERMANENT SURGICAL TREATMENT OF BLIND ABSCESSES."

DR. W. HIRSCHFELD, Paris:

Said the subject dealt with in the paper was one which should continually come before the society. Pulpless teeth could be divided into two classes, those that had not given any special trouble and those that had given trouble owing to some sort of inflammation or swelling having occurred. He did not agree with the essayist in regard to dealing with those cases where there had never been any special pain or inflammation. In removing the contents of canals by means of Donaldson's broaches, the broaches should be dipped into some kind of antiseptic solution and the contents removed with the greatest of care.

In the treatment of pulpless roots it was not so important what was put into them as what was taken out of them, and a point that struck him as being very valuable in treatment was to dip the broaches right away into an antiseptic solution in order to avoid infection by going too near the apex. Another point that had struck him as being rather doubtful was not to use any antiseptic or chemical which was liable to produce a chemical reaction. The first consideration in treatment was to avoid irritation, and as far as his experience went when chemical reaction occurred it produced just that periostitis which it was necessary to avoid. Therefore his idea was that in those teeth that had never given any trouble the contents of the canals should be removed very carefully by means of Donaldson's broaches dipped in some solution, and then an antiseptic applied. In those teeth which could be treated by means of artificial openings there was sometimes found the beginning of a swelling, and that swelling exactly denoted where the opening should be made. Nature seemed to indicate the necessity for opening up the gums in order to establish a road for the antiseptic to enter right into the gums. In regard to those teeth that did not show any swelling of the gums, he could not agree with the essayist that the rational method did consist of opening the gums. It seemed to him that if nature was always followed, after a short time it would be seen that the application of such a remedy as formalin, applied as the author said, would bring about, after two days, a serum-like change in the saturation, and finally healing. Whether the crystals of carbolic acid or any other antiseptic was used, the thing was simply to establish an opening in order that the antiseptic might get through, and it really did not matter what kind of antiseptic was used.

MR. CHARLES RATHBUN:

Was very glad to see the essayist believed that there must be complete, or as complete as possible, dryness, antisepsis and disinfection, brought about at almost any cost in the treatment of root trouble. He did not quite agree with Dr. Hirschfeld objecting to heroic treatment in the case of blind abscesses. He himself for years had used a circular knife working with a spring on a little drill, and when he had a blind abscess he found there was less pain and less trouble to freeze the gum and cut down to the root. The first pressure of the knife cut the gum and the continued pressure against the spring put a little drill down and made an opening. As compared with lancing, a complete circular opening was obtained, and the gum periosteum could be taken away and there was no difficulty in keeping the wound clean. The amount of pain and irritation was infinitesimal compared with one hour's pain from a root that had been corked up a little too tight.

DR. W. A. SPRING, Dresden:

Was sure the members were very grateful to Dr. Portuondo for presenting so concise and clear a statement of his method of treating such troublesome cases, because there was no class of work that required such careful treatment, and lack of accuracy led to very serious trouble. He took exeption to one idea of the essayist, namely, the making of as small an opening leading to the pulp chamber as possible. He had seen many cases where the attempt to make the opening very small to make some saving of tooth substance had led to the eventual loss of the whole tooth. His own openings leading to the pulp chamber were made a great deal more freely than they were made many years ago, because he believed that the opening must be made sufficiently large to get to the point of the root without any doubt. He had seen a good many cases where an attempt had been made to save a bit of tooth substance and a very serious loss had been incurred afterwards. The use of the Glidden drill, or any drill, if the opening was too small, was a dangerous thing, because one could not always follow the length of the root, and there was a possibility of making an opening in the side of the root. He liked the Beutelrock drill better and had never had any difficulty during the years he had used it. An occasional breakage of the drill might occur, but always at the shank so that it could be lifted out very easily. He understood the essayist recommended the use of his method in all blind abscesses and he should like to ask if he would use the method during congestion in order to save the pain which resulted from congestion?

DR. A. WETZEL, Paris:

Said there were certain teeth which produced abscesses and were extremely easy to treat on account of the openings and the facility with which the apex could be reached; but there were others, for instance, the buccal roots of upper molars or the roots of the first bicuspids, where the foramen was so small that it was hardly possible to get through with any drug. His experience had been the same in treating such abscesses, to remove all the putrefying matter from the root in such a manner as to push nothing through the apex of the foramen, but when the abscesses did not heal with the employment of different antiseptics he had made the opening of the apex larger so as to be able to press through not only an antiseptic but also an escharotic drug, such as creosote and other things. By leaving the tooth open for a week or a fortnight, changing the application about every three or four days, he had generally been able to kill the abscesses. He did not believe that abscesses could always be cured by simply injecting antiseptics or escharotics. Where a root was necrosed he did not think anything would cure unless the apex of the root or the diseased bone could be scraped away. He had had the greatest success with lactic acid and trichloracetic acid. A drug had to be used that really irritated the tissue.

Dr. R. H. Portuondo (in reply):

Said that in molars that had never given any trouble at all there was no blind abscess; it might be a mummified pulp. But that was not the case which he had presented. If he found a tooth had been existing for fifteen or twenty years with a dead pulp and had never given the slightest trouble, not even to the touch, no treatment was needed, but when there was a slight tenderness or redness about the gum he diagnosed a dead pulp and applied treatment. Of course whatever instruments were used must be disinfected, even a new broach. He did not carry out the treatment while there was inflammation of the periosteum. He began opening the root without force and removed all the detritus it contained, and then left the canal open and put in some counter irritant. In that way the congestion would be relieved. If the pulp chamber was opened the gas, instead of going through the apical foramen, came through the pulp chamber. He did not commence any treatment until all the congestion and inflammation of the periosteum had passed away. With regards to Dr. Wetzel's remarks, he had been always against perforating the apical foramen with any kind of instrument. It was an operation that was done very frequently, but his experience was that it was not a thing to be depended upon for a permanent cure. It very often gave rise to trouble and produced in the course of time absorption of the ends of the root. Pumping was used simply to avoid going into the crooked and very narrow canals. The slight amount of phenic acid used left a scar on the gum which enabled the point of passage to be detected. In molars very often it was impossible to see that part of the tooth in which the trouble occurred and the root might be treated without treating the condition that had arisen in consequence of the infection of the root, but by the use of pumping the disinfectant could be forced into the infected part with absolute certainty and enable the operator to be sure that he had gone through the whole tooth from the pulp chamber to the gum.

DISCUSSION OF THE PAPER BY DR. KRITCHEVSKY, ON "PYORRHEA AND ITS RATIONAL TREATMENT."

A member stated that for the last twelve months he had been using fluoram and had met with success in every case in which he had used it, in fact he had never found anything to equal it.

Dr. C. T. Hotz, Paris:

Said he had tried fluoram in a good many cases and it seemed to relieve almost immediately on being applied. In cases where the pyorrhea had reached the end of the tooth it was perhaps very difficult to bring the fluoram into contact with the end, but even in very bad cases it always gave relief from the next day. He had never seen any sloughing of tissue resulting from its application, and a few hours after it had been applied it was possible to scrape the tartar from the teeth.

Dr. W. J. Younger (Paris):

Said he could not discuss the question of fluoram because he had not used it sufficiently to give an opinion, and the two cases in which he did use it he did not want to dwell upon because he might not have used it properly. If it fulfilled the claims made by the essayist it would be a Godsend to the profession, but he should like to know whether it affected the tissues so as to prevent any union being established between the tissues and the root. It was well known that in pyorrhea the only way in which a cure could be effected was by the complete, absolute removal of the deposit—that was a *sine qua non.* Then, having removed the deposit, the thing was to get an attachment between the root and the tissues of the alveolus. In doing that the tooth was restored to its primary condition, and if later on the disease should attack the tooth again it attacked it at the surface *de novo,* and not towards the apices of the roots. If the proper treatment was not carried out the pockets remained as a depot for food detritus and the tooth remained loose. Pyorrhea alveolaris was not a local manifestation of general diathesis. He had had experience of it dating back to 1864, when he made his first cure of pyorrhea; by his clinical experiments he had proved, to himself at any rate, that pyorrhea was not a local manifestation of any general disease, although it might produce a general disease. Each pocket might become a focus for the dissemination of disease microbes that would produce abscesses, even on the surface of the body. Tartar, which was claimed to be the originator of pyorrhea was not so; it was the consequence of pyorrhea. It followed the invasion of the microbes into the alveoli and was not pericemental in its origin. Tartar was simply the result of the disintegration of the bony structure. He congratulated the author upon the excellence of his paper, which he had read with very great pleasure.

Dr. W. C. Achard, Zurich:

Said the evidence of the ravages of pyorrhea had been found in Egyptian mummies, and it would be very interesting historically to know that in the oldest specimen of humanity the disease was also found. He should like to ask the essayist on what he based his opinion. He had seen a model of the lower jaw and on the six anterior teeth there was a small plate missing. The idea of pyorrhea occurred to him but he thought it had only been chopped away and lost.

Dr. V. de Trey, Basel:

Said he had had a good many cases of very bad pyorrhea and had had no results in treating by known medicaments, and he was impressed with the fact that there was something else besides the local disease. As it was known that sugar played a great part in connection with pyorrhea, he always now asked the patient whether there was any sugar in the system, and if researches had been made in the urine for any trace of sugar. He had a lady patient whose teeth were in a very bad state and on inquiry he was told that the doctor said there was no sugar. He was rather astonished and asked the doctor to make another investigation and on doing so found that sugar existed in a proportion sufficient to act upon the pyorrhea. The lady was treated for the sugar and upon its disappearance the treatment of the pyorrhea was greatly assisted. Therefore he thought in all cases of pyorrhea the presence of sugar should be suspected.

Dr. G. B. Hayes, Paris:

Wished to know the experience of others as to when pyorrhea was rational and when it was reasonable to attempt its cure, and when not. In his own experience when he found the tartar had gone over the end of the root that root was beyond cure. It might be ameliorated or kept free from pain for some time, but cure was not possible. In the case of a molar or a double rooted tooth, when the tartar accumulated in the bifurcation of the root, the tooth was equally past curing, unless, when it was possible, by excising one of the roots to clean it. In such a case, however, it seemed to him impossible to clean and maintain the cleanliness. A pocket remained which the gum would not fill and therefore a cure could not occur. Perhaps Dr. Younger might throw some light upon the question as to when it was reasonable to expect a cure and when a tooth was worth two or three hours' treatment.

Dr. W. J. Younger:

Said that when the deposit had attacked the end then the end of the tooth had come. In the case of bifurcation when the deposit could not be removed the tooth could not be cured, but when the deposit could be removed it was possible to cure, and that part of the tooth would be good for years. With regard to sugar in the system, that was simply a diathesis that had nothing whatever to do with the formation of pyorrhea, but all constitutional conditions affected the cure. As soon as the system was restored to health the attachment of the root became healthy.

Dr. B. Kritchevsky (in reply):

Said he had found many cases of tartar in the mouth, mostly in people who paid no attention to the hygiene of the teeth, but had not found pyorrhea. Pyorrhea nearly always was found present with some general disease and it was always necessary to direct the patient's attention to that disease and suggest the consulting of a physician. He agreed with Dr. Younger that it was necessary to destroy all local manifestations. Destruction by scraping could be done only by very few men; it was a treatment that required hours and could not be carried out in general practice because most people were not able to afford to pay the cost. If the action of the fluoram facilitated the removal of the deposits, as he maintained it did, it was really a Godsend. It was also important as a general antiseptic, and as there was no antiseptic that would act in that way it was really a new thing in dentistry. It remained to be seen, however, what proportion had to be used before it could be looked upon as an atiseptic for use in general surgery. He mentioned a case of which he showed the model to the Stomatological Society, and the members of that society all agreed it was a case of pyorrhea, and they were all greatly struck with the excellent results produced by the use of fluoram. In the treatment of pyorrhea it had always to be remembered that if there was no attachment to the root the tooth had to be taken out, but if there was only a third of the attachment a cure might be attempted with the use of a splint.

DISCUSSION OF THE TWO PAPERS BY DR. STEWART AND DR. JENKINS.

DR. W. A. SPRING:

Said that any paper that recommended the making of porcelain crowns to the exclusion of gold crowns he welcomed with a great deal of pleasure because he believed it was the duty of dentists practically to confine crown work to porcelain crown work in preference to gold on account of its attractive and natural appearance. The idea suggested by Dr. Jenkins that such a piece of work was more cleanly also obtained, because porcelain was more easily kept clean than a gold crown. The work Dr. Stewart had shown was attractive, but he failed to see the advantage of making two facings and then filling in, when it was so easy to carve a complete crown with the simple method of freehand carving. He did not understand why so much time need be taken. The freehand carved crown was much more quickly made and certainly had no disadvantage in point of strength if made with a high fusing porcelain. There had been some difficulty in getting high fusing porcelains that were satisfactory, but he thought safe and sure materials were being arrived at now. With regard to the suggestion that in the attachment of a high fusing body to a facing there was great danger of getting bubbling, with a full carved crown that danger was practically negligible.

DR. W. S. DAVENPORT (Paris):

Said he had had the opportunity of seeing Dr. Jenkins' work during the last few years, but had not had himself very much experience of porcelain work. He had become convinced, however, from what he had seen of Dr. Jenkins' cases, what were termed in the conservative school extreme cases of bridge work, that hardly a single case had given the slightest trouble. On one or two occasions Dr. Jenkins had presented his ideas before the American Dental Club of Paris and extreme cases of bridge work had been carried out with the greatest possible satisfaction both to Dr. Jenkins and his patient. In looking at the specimens one would observe that they were so beautifully contoured, so perfectly covered with porcelain, and so carefully protected at all points, especially where the teeth came in contact with the gum, that the cleanliness was extraordinary even in mouths with shakey teeth and extreme pyorrhea. With regard to developing the foundations for the bridges it would be noticed what great care Dr. Jenkins devoted to the platinum spindle, and how absolutely accurately everything was studied in developing the forms. Most of those who had been in the habit of using high fusing materials were somewhat prejudiced against the low fusing material, but Dr. Jenkins had almost convinced him that the porcelain he used was probably as strong as any other material. It was a porcelain that certainly could be ground, while at the same time it preserved a perfectly smooth surface, which could be polished at any time. In making his bridges the use of such porcelain enabled Dr. Jenkins to use more gold with his platinum. It had been a great delight to him to have the chance of seeing so many cases of bridge work carried out in so effective a way, in a way, indeed, that probably no other bridge work could be carried out. He did not believe that the regular practitioner would ever be able to do work of that sort, because it required a man of great ability to organize a staff of workmen capable of doing that class of work. Dr. Jenkins' power over men was such that when he conveyed his wishes his people were delighted to carry them out, his staff thus working to his ideas and assisting him very greatly. There was hardly any necessity for discussing anything Dr. Jenkins brought before the society. They owed a great deal to him for insisting upon the profession working from an artistic point of view, while at the same time showing how easy it was, for Dr. Jenkins, at any rate, to make a successful operation in such perfect material.

Dr. W. A. Spring, Dresden:

Also expressed his admiration for the beautiful work shown. Having said so much in favor of high fusing porcelain, it seemed to him only justice that he should say the time had undoubtedly arrived when it had to be recognized that Dr. Jenkins' porcelain had sufficient strength; it had been proved by years of service, and the fear which high fusing men had years ago that the glaze would disappear had proved not to be well founded. With regard to the necessity of using a low fusing porcelain in order to avoid the warping produced by the great heat in making a porcelain bridge, his experience was that it was possible to go considerably higher with perfect safety; it was possible to make a single tooth with safety, but the attempt to make a bridge necessarily resulted in failure on account of the warping. But any porcelain that baked at a temperature like that of Close body could be used for bridge work, and S. S. White's high fusing porcelain would be also a satisfactory porcelain for a bridge and the warping could be still avoided. He was glad to see that the fear which high fusing men had entertained as to the lack of strength in a low fusing body had been dissipated by years of success.

Dr. Jenkins (in reply):

Expressed his thanks for the very flattering remarks that had been made by Dr. Davenport and Dr. Spring. With regard to the training of workmen, he thought Dr. Davenport had laid rather too generous a weight upon that matter, because Dr. Davenport had so cleverly instructed his workmen that there was nothing in the world they could not do. He had been spending his time very largely in Paris in studying the principles upon which the important work should be grounded and he hoped by the experiments he had in view to reach definite and true conclusions and be able later on to give to the profession the result of his many hours' investigations in that direction. The long and arduous path he had been traversing, a path that had been remarkable by many instructive disasters, had led him to the conclusion that any man who would seriously consider the question, who would study the system, could introduce the work into his daily practice, and would find that its advantage over all other forms of bridge work was so great that when once understood it would be very generally adopted by first-class dentists. It secured in the first place a sanitary condition such as was not possible in any other form of bridge work; and it secured naturalness of expression and color. The great advantage of being able to select out of the enormous number of shades of color placed at the disposal of the dentist by the manufacturer was something of very great importance. Teeth might be selected from half a dozen different manufacturers. In some large bridges he had made he had used four or five teeth of different manufacturers, and in combining them was able to produce a naturalness of appearance both in color and in form of a very desirable nature. His original object was to find a low fusing porcelain which should be at once readily worked, which should be solid, and which should be very strong; and he believed there was no porcelain stronger when it was used in the right place and under the right conditions. With regard to warping, while it was not a serious matter in making a bridge with perhaps two, three, four, or five teeth, it was a very serious matter indeed in making a bridge, as he had sometimes done, of ten or twelve teeth. It was important not to have the very faintest change in any part of the bridge. When such a bridge had been filled out, the skeleton formed, and the teeth put into position, and the requisite supports had been given in every direction, so that absolute stability was obtained, if then the bridge was put into the oven all the platinum surfaces must be covered with porcelain. Sometimes that porcelain had to be very thin and under ordinary conditions it was impossible to sustain the bridge in the oven so that it was equally supported everywhere and yet have the porcelain wherever it was wanted and not injured by the oven. It required skill to support it with little stages here and there. Sometimes with a great bridge, and often with a small bridge, there would be a considerable section that was not well supported, and in that case there was a risk with a high fusing porcelain of warping, and warping, no matter how insignificant, might result in the failure of the bridge. For that reason he had found it essential to confine himself to a low fusing porcelain. He hoped in time to be able to make the matter so clear that the wayfaring man need not err in it.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting was held March 15, 1910, with the President, Dr. W. H. G. Logan, in the chair.

Dr. F. Ewing Roach read a paper entitled "Casting as Applied to Crown and Bridge Work."

DISCUSSION.

DR. WILLIAM H. TAGGART was called upon to open the discussion. He said:

Mr. President:

It is a pleasant thing for me to receive such an ovation as this at this time, after three or four years since this process was given to the profession. In that time I do not think anyone who has taken it up has given it up and gone back to the older methods.

Of course, at this time, there is no use of my adding anything to what Dr. Roach has given you in his paper as orthodox treatment. It is a little hard to do anything with a paper that is so well written and which states so many facts. However, a paper is never so well as when it is thoroughly criticised. I remember in college our professor said it did not make any difference how many questions students answered correctly, he never gave anybody 100 per cent, because 100 per cent meant perfection, and he did not consider any man perfect.

In Dr. Roach's paper there are a few points which may be criticised, and still I think it is 99 per cent perfection. Speaking of the different alloys and the necessity of technical training, his remarks on that and that phase of the subject were excellent. Considering the small amount of material we use it would be impossible to get an apparatus constructed so as to make the tests for strength; in other words, to take a piece of cast metal and add the hundredth of an inch to the thickness of it, you alter its strength and resistance in all directions so materially that it will be hard to know what the strength of that would be in pounds. In other words, my idea of the strength of metals is this: to use a metal that has got say 5 per cent of platinum in it, rather than to use a metal which is below twenty-four carat. You will get more stiffness and strength of gold by adding a small proportion of platinum than by using twenty-two or eighteen carat gold, and alloying that with copper and silver. You will have more of the qualities which Dr. Roach thinks necessary by alloying gold with platinum, and going above twenty-four carats, rather than below. There is no doubt but what metals that are rolled and drawn into wire or rolled into plate are stronger in proportion to their bulk than that same piece of metal would be if cast. But in this casting process we have such a great opportunity of adding to the thickness and bulk here and there, we can get an additional strength on account of its extra bulk, and extra size, which would be hard to get if we tried to manipulate any of the stiffer metals to the same form. In other words, a stiff metal, when rolled or drawn into a wire, is prohibitive of bending or fusion into any of the different shapes necessary in bridge work. So for that reason we have to use a thin or light piece of this stiff metal.

This light piece of stiff metal or wire is not nearly so strong as the proper bulk of the cast metal would be, and as the cast metal is so easily evened up and formed, there is no doubt in my mind but what we have got an opportunity to make additional strength without making any unnecessary bulk of the apparatus.

As to the question of the different kinds of crowns, the process of constructing crowns and bridges has entirely changed. To those who have used the process, this is just as true as can be, but those who have not used it do not know what they are missing.

I wish to call attention to one thing which seems to have escaped Dr. Roach's mind when he was talking of drawing facings from the wax. He spoke of it as though you simply take hold of it and it comes off without any trouble. But there is lots of trouble in getting the facings of detachable crowns separated from the wax. When I first introduced the subject, I thought vaselin would make the separating medium between two pieces of wax, or between any piece of wax and porcelain surface pushed against it. At first, our knowledge was empirical, and after I got to studying this subject I began to find that all of the mineral oils, such as vaselin and kerosene, etc., were solvents of wax more or less; that all of the animal oils are solvents of wax. Consequently neither one of these is practical for these cases. The vegetable oils are not solvents. So wherever you wish to have two pieces of wax separated, or where you want the wax separate from the metal or the porcelain to separate from the wax that has been pressed against it, use a vegetable oil, like castor oil, or olive oil, or linseed oil. Any of these are better than the minerals or the animal oils.

In speaking of putting on a dowel crown, for instance, Dr. Roach says to mold the mass of wax around the end of the pin and using the crown as a plunger. If this crown has been oiled, it will come away much easier without distorting later on.

In looking at the end of a root where it is ground off labially and lingually beneath the gum sufficiently, I have been in the habit of going down in there with a square end fissure bur, and cutting across, and then I get the inlay effect part way down in the root, which is a great help in those roots where you can only get a short pin.

I wish to speak of a point that Dr. Roach did not mention in his paper, but we have talked about the subject several times, and that is the theory of casting one metal against another where you have made an abutment of one kind or a crown of one kind, and one part is cast up to it. A great many do that by raising the temperature of the flask until they see it is red on the inside, and then melting the gold and throwing it down in there. They think they get a better attachment than by casting at a lower temperature. I find that is a mistake, not only practically, but theoretically. I will tell you why I think it is a mistake. The thing that keeps one metal from adhering to the other is oxidation. Now, if you take the part that is in the flask and bring it up to the oxidizing temperature, say 650 red heat, you have brought the surface of gold up to where it is oxidized; consequently you throw the metal against an oxidized surface. A better plan is this: as soon as you have passed your piece of metal through the acid and it is chemically clean, wash off and dry immediately before you even touch your fingers to it in any place, or before atmospheric conditions have had any chance to influence it in any way, and just flow a little hot wax over the surface you intend later on to be attached to other gold. That stops all oxidation while you are going through the other manipulative processes necessary to get it into the flask. After you have got it into the flask, there is not sufficient air in there on account of the wax occupying the space for oxidation to take place, and it is only necessary to burn out this wax; in other words, the temperature necessary to burn out the wax is not an oxidizing temperature, so that when the gold is ready to be thrown in there, you throw it against an absolutely clean, non-oxidized surface. Theoretically, this seems logical and practically it is borne out. There is no reason why this theory should not be borne out in the casting of these metals as in the working of cohesive gold. Just a touch of the finger will spoil all the cohesion, and you will not get results because the surface has been contaminated. I think all of these problems will work themselves out later on by looking at them from a really scientific viewpoint.

I wish to utter a word of caution to some of you at this time in casting. If you do not meet with results, do not for a moment say that there is nothing to this process, because you have tried it; but remember the more skillful men in the profession are the ones who are praising it the most. These are the men who are willing to pay attention to the details. If you are not satisfied or feel discouraged over the process, just stop and think for a moment how many long and weary months and years it took Dr. Black to work out the point or to solve the problem why gold was cohesive, and how to make it so. While it took him many years to work this out, and to give you the scientific side of it, you acquired a knowledge of that fact in a short time through his laborious studies, and after series and series of experiments extending over several years he found it was a question of absolute cleanliness. He has told you in five minutes what it took him several years of hard work to find out. If you are told that such and such a thing is true, you should take it on faith until you can prove that Dr. Black is wrong. If you will take into consideration the amount of time that has been spent in conducting experiments in the way of casting by those who are interested in the work, and who finally give you the results of their experiments, results which are not haphazard or those arrived at on the spur of the moment, you will then appreciate the value of their work. It has taken thousands of experiments to prove the value of this process, eliminating one objection after another, finally sifting out and weeding out everything until we finally got to the basic principles necessary to do the work. If it took these men thousands of experiments to do this, and then they tell you in five minutes the practical results of all that work, why in the name of common sense do you not follow the work of these men and accept their statements in good faith?

Dr. M. L. Ward, Ann Arbor, Michigan:

I am very glad to be here on this occasion, on account of my friend, Dr. Roach, who told me to come over here and bring some data and some results of some experiments on the tensile, torsional and compression strength of the metals used in casting. When I received his letter I called up the chemical laboratory and was told that they did not handle much of that material; that they did not know much about it, but that we as dentists ought to know all about it. But in looking up what has been written on the subject regarding the strength of these materials I found a good deal with reference to our work, but nothing definite. There was scarcely a thing to be found on the subject of the strength of gold. There were some things, however, which related directly to the strength of other materials, particularly with regard to that phase of the subject which has been spoken of this evening, namely, drawn and annealed materials. In engineering lines drawn and rolled materials are treated about the same. I suppose the two have about the same effect upon a material, one which has been drawn has been made in about the same condition as one which has been rolled. There are few exceptions, but it is the rule rather than the exception that the result is the same, and that with the exception of steel, this condition which is produced is relieved upon heating. Steel is the exception to this. It is fresh in all your minds, of course, that steel is hardened at that temperature at which the other metals are softened, and that by plunging steel we preserve the existing state. Other metals than gold furnish a very good illustration of the thing which we are speaking of, namely, the difference between the tensile strength of rolled or drawn metal and annealed metal. A copper wire 1 mm. in diameter will support, when drawn, 40 kilograms before it will break; whereas annealed it will support only 30. Iron wire of the same size which has been drawn will support 60 kilograms, while, when annealed, it could only support 46. Lead, while it was drawn, would support only 2 kilograms, and when annealed 1.8. Platinum will support when drawn only 34 kilograms; less you will see, than copper, and less than iron, and that platinum, which has been annealed, 23 kilograms. Silver, after it had been drawn only 29 kilograms and that silver, which has been annealed, only 16 kilograms; steel, which has been drawn, 70 kilograms, and, when annealed 40 kilograms. Tin, which has been drawn, will support 2.45 and that which had been annealed, 1.7. In every instance there was a marked difference in the drawn material over that which had been annealed. We must assume, I think, that pure gold and pure platinum are annealed, when cast as dentists are now doing. Whether the different alloys of gold are annealed when cast can be determined only by experiment, though I think there is little reason to believe that any of the metals or alloys now used by dentists for casting are possessed of as great tensile strength as rolled or drawn ones. It would seem that we have sufficient data to verify the statement that the annealed or drawn metal is much stronger.

With reference to casting, I had occasion to make a few experiments in regard to the temperature, and I have found that with a number of metals the temperature at which a metal is cast made a great difference in the strength of it, as well as the specific gravity. In every case we found it better to make it as near the melting point as it is possible, and still get the fluidity needed to cast it. Fluidity must be had, but the lowest possible temperature, which will permit a metal to go to place and make a perfect cast, is the one which will produce the best results.

So far as tests are concerned I will say that in those metals which were cast under an electric arc, it was shown that something took place in there that does not take place when a lower temperature is had. I think there is every reason to believe that the thing which takes place is an absorption of gases, and this is a problem which we are up against very decidedly in the casting of metals. Silver is said to absorb twenty-two times its own volume of gas in a molten state. Copper is known to be almost as bad, and, in fact, those who have tried to get copper castings have almost invariably poured the metal so cold that they did not get good casts, so that they could prevent warping out of shape with the evolution of the gases absorbed in a molten state. Pure gold is pretty nearly free from the absorption of gases. It absorbs only one-half of 1 per cent of gases when in a molten state. Platinum absorbs almost as much as silver, probably nearly twenty times its own volume in a molten state. This furnishes us a great deal of evidence, I think, that metals should be cast as cool as possible, and have proper fluidity. A thing which a good many of us try to do is to cast a metal which is sluggish. We go on and raise the temperature of the metal far beyond its melting point. It is extremely hot, but at the same time we have not the thing which we ought to get, viz: fluidity. I consulted a number of men in foundries in regard to this point, and everybody was unanimously of the opinion that a cast must be made at the lowest possible temperature that we can get fluidity if we are to avoid absorption of so much gas, and to avoid excessive strains. The thing that bothers men in a foundry is not altogether the absorption of gases, but the production of undue strains due to irregular thickness of the casting. For instance, if a piece be broken from a pulley which has a thin rim and a comparatively heavy hub it will scarcely ever go back to place unless the gap is opened by force. The explanation for this is that the thin rim cooled first and the comparatively heavy hub later and shrank a little more, thus exerting a strain in the wheel which manifested itself as soon as the piece was broken out. I think that some of the irregular pieces of work which dentists are attempting to cast are subject to the same conditions and dentists can do no better than to introduce a few of the principles of engineering into their work.

With regard to the coefficiency of expansion of the different metals, that is, the amount of expansion these metals have with the different degrees of heat, it seems to give no guide whatever to anything which we should do or a selection of the metals for alloying and casting. For example, platinum has the lowest coefficient of expansion of all the metals and yet it is known to have other properties such as the absorption of gases which make it less desirable than gold with its much higher coefficient expansion. I was very glad, however, to hear Dr. Taggart say that he used platinum with gold for hardening it, etc., instead of silver and copper or any of the lower karat golds, for the reason that I believe platinum in small quantities is more reliable than either of the other metals mentioned. I was also glad to hear Dr. Taggart speak about casting to the gold, though I should take a little different course of reasoning than he did to account for his success. We have in wax the carbon which is the best reducing agent available and a thing which metallurgists use a great deal of. This in itself will prevent its oxidation unless the case is heated up to a point long enough to convert the carbon into carbon dioxid.

Dr. Roach spoke of the quality of bridge work that is being done with inlays as being very much superior to that which was done formerly, and I agree with him heartily. In fact I agree with him in almost everything he said in the paper. But there is a word of warning which all of us must hand out at this time for those who are not quite conservative enough in a thing so fascinating as this inlay work is. I believe there is a possibility of doing great harm in casting abutments for bridge work, for two or three reasons. First, the profession have not adopted enough of extension for prevention in practice. They are not carrying it out in their bridge work, and when they do not their work is either an absolute failure or it is a temporary operation. Again, in their bridge work they have not seen the absolute necessity for having good clearance between the first dummy and the abutment. They crowd the dummy up against the abutment so that you cannot see through it, a thing which cannot be carried out if gold inlays are to be successful as abutments for bridge work.

Dr. G. W. Dittmar:

I wish to elaborate on one point that was but mentioned in the paper and not touched upon in the discussion, and that is regarding the investing or flasking of the wax model. There is a great deal of slipshod work being done along this line and good results cannot be obtained unless the materials used and the technique employed are correct. To do accurate work in casting *every detail* needs to be accurately observed and a very important part is the investing:

First. The investment compound should be of certain definite substances, properly mixed and in definite proportions. I have found a marked difference in the way a certain brand, for instance, will work; that is, one can may work entirely different from the next can that you purchase, due, I believe to different grades of the ingredients or else to different proportions of the ingredients. This, in my opinion, applies to most of the makes of investment compounds.

Second. The amount of water that is used in the mixing of this investment compound. There should be definite amounts of water and compound used. When mixed, it should not be too thin or too thick.

Third. The water should be as nearly as possible H_2O. You cannot expect accurate results if you do not use exact materials in exact ways. I have found that lake water and cistern water and well water each act differently in mixing investment compounds, because of certain chemicals in these waters.

Now, regarding the technique, I am thoroughly satisfied that no method that I have employed gives me such good results as the technique given us long ago by Dr. Taggart. I have tried many materials in many different ways, but the best castings I get are those coming from the technique I learned from the master of this process. For the benefit of those who may not have seen or heard this process of investing described I will briefly attempt to describe it:

In an ordinary plaster bowl, place a certain quantity of water (it should be pure water), the quantity depending upon the amount of investing material needed to fill the flask you are using; into this water sift the requisite amount of investment compound, and with a spatula stir to thoroughly mix. Then, inclining the plaster bowl to one side, tap it on a bench or table and slowly rotate. This will cause the material to spread itself in a thin coating over most of the inner surface of the plaster bowl and will cause an elimination of most of the air contained in the mixture. Continue this tapping and rotating until you are satisfied most of the air is out.

The wax model having been previously mounted on a sprue and crucible former is now carefully coated with the investment material. Now thoroughly cover the model, sprue and crucible former, then carefully place the flask and fill to excess with investment.

Holding the crucible former or lid securely on the flask, invert it onto a glass slab and slowly and carefully press it down so that the investment material will thoroughly pack around the model, slide the flask off the glass slab, now over a little more investment material on the slab press it down again and slide off again, repeat this several times to make sure it is well packed.

A small hole through one side of the flask about 2 mm. in diameter is of advantage in that as the flask is pressed onto the slab the excess comes out of this hole and any air that may have been caught while investing will often be gotten rid of through this hole, as the excess of material runs out through it. The last time pressure is brought on the investment place your finger over the hole; this will make it pack more solidly.

Care must, of course, be exercised, and the work must be rapidly done, so that the investment material does not get too stiff. Now, carefully dry and burn out the wax. Do not overheat the flask, after it is thoroughly dry, let the flask cool and then make the casting.

DR. LESTER BRYANT:

I would like to emphasize the point of extension of inlay abutments, getting them well down cervically and proximally. If you take a narrow inlay and with a tooth against it you will have recurrence of decay at the margins. They must have extension, and I believe in fully cutting out a portion of the tooth next to the dummy tooth, so that you get a good clearance with the use of a sterilized cleaner.

Dr. Roach spoke of cutting a pin-hole where you cement the facing on larger, and then flattening one end of it. I believe if you drill a hole the same size and insert a short pin you will get greater strength than with a larger hole and flattened edge.

Another point that has not been mentioned is this: after you get the wax all ready to invest, if that is quickly washed off with soap solution, you will get better investment than by trying to invest wax without the soap solution. The soap is a sort of lubricant to lay the investment over.

DR. W. O. FELLMAN:

There is one point that might have been emphasized a little, and that is in regard to the post which is forced through the wax in the construction of a crown. I have had a little trouble with the post slipping from the wax, possibly because it was not heated hot enough, but I have found a method which seems to make that a little easier. I take an iridio-platinum post and cut a little spur this way (indicating on blackboard), and one this way, at the place where the wax is thickest, then put the post through the wax, and when this is done there is no slipping up or down.

Another point is with reference to the investment of the inlay. My method has been to take the cap and hold it in this manner (indicating) and form a ring with the thumb and finger around the inlay, and place the material around that gradually, and when it is up about a half or over the inlay contract the fingers a little, which forces the material tight around the inlay, and if there should be any bubbles, it forces them out by contracting the fingers a little more, and taking the ring, placing it through the investment, or over it, and you do not have any trouble with air bubbles after that.

DR. W. D. N. MOORE:

There is little left to discuss. One thing has set me thinking and that is concerning the manipulation of the wax between the end of the root and crown so as to get perfect adaptation of the wax to both of these and at the same time retain the pin in its proper position. In addition to this, the crown is to be placed in its proper alignment. I have tried to do this and found considerable difficulty on account of these details as well as the moisture from the gums interfering with the adaptation of the wax. I have attempted to overcome this difficulty by following the suggestion I got from Dr. Goslee—by adapting a thin piece of metal over the end of the root and attaching it to the pin and burnishing it thoroughly to the root end. To this plate of metal and the end of the crown the wax can later be adapted. In this way I got more accurate adaptation than with the wax alone, especially in those cases where two or more crowns approximated each other. In case of crowns on the first and second bicuspids, it would be impossible to construct them at the same time, which affords a greater opportunity for a better result than when making them individually. According to Dr. Roach and Dr. Taggart, the handling of the wax seems simple, but I find there is a breaking away of the wax here and there so that I never know when I have the wax well adapted to all parts.

One point I do want to emphasize and that is accuracy and attention to details. This is the keynote to success and particularly in connection with the use of inlays for attachments for bridges. Cavities for inlays should be carried well to the buccal and lingual sides and well to the gingival parts of the tooth. This is necessary.

Dr. Roach spoke of the attachment of inlays. This is important in inlays to be used in bridge work. If it is necessary to devitalize, a post can be used. If it can be done without devitalization, pins in dentin are necessary, but the main point is accuracy in every detail in order to accomplish best results.

Dr. Arthur D. Black:

Three or four of the speakers have mentioned the fact that in making inlay abutments the cutting should be far to the buccal and lingual and far to the gingival. I do not believe that ought to go by without a word of warning, as there is a limit to which we ought to cut in all three of these directions. We must not, in order to secure better retention by making large abutments, violate those laws of cavity preparation which have been made as a result of our knowledge of the pathology of dental caries. We must remember that the actual angle of the tooth is the place of greatest immunity to decay; that as we approach that angle we get in better territory, but the minute we pass beyond it, we are getting into territory more susceptible to decay, and the nearness with which we should approach the angle should be governed by the same rules as apply in preparing a cavity for a gold filling, or a gold inlay, namely, the rules of extension for prevention. We should be governed by the width of the embrasure, which will indicate where we should place the margin in order that it will be kept clean by the excursions of food which pass over it. Errors are also being made in the preparation of cavities for inlay abutments in cutting too far to the gingival. There is no good reason for cutting farther to the gingival than is necessary to place the margin well below the free margin of the gum septum. It is absolutely wrong to cut the margin down to the gingival line of the tooth. Please distinguish between the gingival line of the tooth (junction of enamel and cementum) and the line of the free margin of the gum septum. It is unnecessary to cut the cavity to the gingival line, and it should never be done, although it has been done in two of the models that have been passed around.

One other point I want to criticise. I am glad to find something to criticise in Dr. Roach's excellent paper, because I think it is a good thing to do where we can. An instrument has been shown which is used to trim off the end of the root of an incisor tooth. I believe our friend Dr. Ottolengui was guilty of presenting the first root facer to the profession. (Laughter.) He was guilty because it is one of the most abominable things ever given to the dental profession; a facer which has a projecting pin which passes into the root canal and the blades cut the end of the root right off square. What do you do when you use it? Let us suppose that this looks like an incisor tooth. (Illustrating on blackboard.) If you draw a gingival line on that tooth (the connection of the cementum with the enamel), it will be very much like this (illustrating). It is decidedly convex in the incisal direction. If you take such an instrument as this and place the pin in the canal, and revolve the instrument, cutting the end of the root off square, you cannot possibly cut the root short enough on the labial or lingual, without severing the attachment of the peridental membrane on the mesial and distal sides. This is a point we should not overlook in preparing the roots of incisors and cuspids. There is no doubt but that the use of this and similar instruments has caused the loss of many teeth by injuring the peridental membrane.

Dr. William H. Taggart:

I want to correct Dr. Black's interpretations of the instrument of Dr. Roach. There is no comparison or similarity between the instrument that Dr. Ottolengui introduced and this one of Roach's, except they are both made of steel. In Dr. Roach's instrument there is an area in proportion to the size of it, like this (indicating) the hole going clear down into the instrument, and these represent the cutting edges of the instrument. In the center of that, instead of there being a pin rigidly attached, it has only a little flexible pin, which will allow itself to be pushed to one side of the canal. The pin can be pushed to one side of the hole until the circle can be made very small, because it can be rotated clear around the end of the root on this little point.

Dr. Hart J. Goslee:

While not waiting to be called upon, I must confess I was somewhat reticent about speaking upon this paper for the reason that I had the privilege of reading a paper upon almost this identical subject before this society during the present year. At that time I think I said almost everything I knew about the subject, and hence I did not care to enter into the discussion tonight, because I wanted to hear what the other fellows had to say. However, since I have been called upon, I am very glad to have the opportunity of paying my tribute to the practical value of Dr. Roach's paper, and of saying that the casting process has completely revolutionized almost all the methods I have heretofore used in the construction of crown and bridge work. Why is this so, and why has this process revolutionized our former methods? To those of you who are not casting let me say that this process has revolutionized my methods and will revolutionize yours for this reason: *accuracy* of *adaptation* has always been the keystone to successful work in this line, and by this means we are enabled to obtain a greater degree of accuracy of adaptation than was heretofore possible. I do not believe any one of you will disagree with that statement. In conjunction with that we obtain a greater degree of strength in our work than we formerly did when we used so much solder. These two are the principal reasons why the process of casting has revolutionized my practice, and must likewise revolutionize yours.

As an illustration of the possibilities of casting, I have here a couple of porcelain teeth—Davis crowns—which I am going to pass around because I have made the statement that by this method we are enabled to obtain a degree of accuracy of adaptation and of strength heretofore impossible.

In the models passed around by Dr. Roach you will observe that the work was done on bone teeth, but here I have two backings adapted to *porcelain* teeth. It does not make any difference what the temperature of the room may be, porcelain does not change appreciably; therefore, the adaptation to porcelain is even a better indication of the degree of accuracy which it is possible to obtain by the method. Here are two ordinary porcelain crowns or teeth which are to be used as "dummies" for bridge work and which are designed for the purpose of avoiding the conspicuous display of gold upon the occlusal surfaces of such teeth. These two backings have not been touched since the moment they came from the investment with anything but a brush to remove the investment material, and yet you will notice the accuracy of the adaptation.

Along this line I have also brought a little case with me which will give you further evidences of why casting has revolutionized our methods of practice, and which will give you further proof of the accuracy of adaptation which it is possible to obtain by this method. This piece constituted a little removable bridge of four teeth, every part of which has been made by the casting process, and to the removable post of which is adapted four porcelain teeth, and I call your attention to the adaptation of the gold structure to these porcelain teeth, and to the fact that it is possible, if the technique has been properly observed, to obtain the highest degree of accuracy in our work all along these and other similar lines.

I want also to say just a word or two in reply to the paper of Dr. Roach's. The quantity of wax used between the basal end of the root and the base of the crown itself, as a rule, is not great, and therefore it is often difficult to sustain the relationship between it and the dowel after the wax is moulded to fit the basal end of the root and the base of the crown itself and permit of easy and accurate removal. Because of that difficulty I have invariably practiced the use of a small disc of pure gold, 34 to 36 gauge, burnished to the end of the root, and subsequently soldered to the dowel. This procedure greatly facilitates the adaptation of the wax to the space between the gold base and the crown, and the subsequent removal of the whole, and overcomes the possibility of any change in the relation or form during the removal and investment of the case, and it is much better than filing or notching the dowel, as suggested by Dr. Fellman.

Notwithstanding the accuracy that it is possible to obtain with proper investment material, properly manipulated, I do believe in this connection that in the use of pure gold, burnished properly to the end of the root (providing conditions are made favorable for burnishing it), we can get a smoother surface, and a better fit to the base of a root than it is possible to obtain by simply moulding wax and casting. The smoothness of the surface, which it is possible for us to obtain in casting—and we have evidence of this in the two porcelain teeth which I have passed around—however, let me say, depends largely upon the investment material that you use, and the manner in which you use it, and this is why a lot of us do not get the results which we should get. The possibilities of casting, gentlemen, seem to be limited only by the degree of ability possessed by the operator. Therefore get to work and aid in its further development.

Dr. Roach (closing):

There seems but little for me to say in closing, inasmuch as there has not been very much discussion of my paper. I do not know whether it is for the reason that there was nothing brought forth in the paper to elicit discussion, or whether it was such a magnificent paper that it went clear beyond everyone in the audience. I intended the paper to be purely and simply an everyday, practical contribution, presented in a practical way. I tried to present to you some practical method of using one of our most useful processes in its application to crown and bridge construction. I purposely avoided entering into details or entering into a discussion of the subject of casting and the many problems that surround this question.

In Dr. Taggart's discussion I was very much pleased to note that while he admitted that there was a difference in the relative strength of the cast metal and that of the drawn metal, and the admission also of the necessity for a greater bulk in order that we may obtain the required strength in our prosthetic work, yet I was very glad to have him bring out a very important point there that in the use of the casting process it is possible for us to use a uniform material, that is, in the use of the swaging process, or other forms of manipulation to secure apposition of the metal to the porcelain, it is necessary to use a thin and soft material, which is very low in its tensile strength, and consequently we do not get the required strength that is necessary, so that in the use of wax we mould and build up our material in a uniform mass, giving strength where it is required, and building up so easily that we get absolute adaptation in our work, and it is this adaptation and uniformity and distribution in building which we require, and at the time we construct our pieces in wax we secure the required strength—a plan which is not so nearly possible in any other form of construction we have used in the past.

I knew Dr. Ward would bring up some good points, and I am not disappointed because he gave us some thoughts regarding the absorption of gases in these base metals that were new to me, and explained to me in a measure very clearly the advantages of the use of pure gold when it is possible, and instead of using the lower grade of alloys, to use the alloy of platinum. I had a preference for these noble metal alloys, and Dr. Ward's explanation is very satisfactory to me, in that he explained why this is true. I do not think, however, that Dr. Ward's reference to the similarity of the annealed metal to that of the cast metal is quite a fair illustration, because we can anneal our drawn metal by softening it, and while we reduce materially the tensile strength, we nevertheless have a different molecular relation in these two metals; that is, the molecular relation of the drawn metal is different from the casting in the manipulation, in the rolling, or drawing of the metal, and we have what we term rock metal, which is fibrous, rather than crystalline in form, and it will resist strains. It is more tenacious. It is less liable to assume a crystalline form and thereby break. We have these continued strains. We have these forces applied frequently. It is a well known and established scientific fact that the application of a light force repeated innumerable times will produce crystallization of metals. That is demonstrated in car axles and in various other uses of metals, and consequently it is the difference in the texture or in the molecular relation of the rolled and drawn metals that gives greater resistance to stress applied in the forces of mastication. Wherever it is possible we should use rolled or drawn plate in connection with casting, for we not only gain the advantage of strength, but simplicity of construction.

Dr. Ditmar did not discuss my paper. He got off on the subject of technic of casting, which I did not touch on at all, and consequently I cannot have anything to say regarding what he said.

Dr. Bryant referred to the greater advantage of making a hole in the wax for the retention of the pin of a size so that the pin would fit accurately and by threading this pin we would get a stronger union of the facing to the backing than by enlarging the hole and making a head upon the end of the pin and securing it to the backing in that way. I made them that way years before the casting process was given to us, but I find with the casting process I have to make the hole a little larger, and enlarge the hole in the backing larger than the pin. It is very much easier to get cement in the hole; it is a very much easier procedure all the way through, and whether it is strong enough is not a question at all. It is immaterial to me how much there is in the strength, provided either one is strong, and you can cement it with the head upon the pin, so that when the pin is inserted you cannot pull it out; you will break the porcelain every time before you can pull that out. By making the hole larger the facing will go to place easier.

Dr. Moore's reference to the burnishing or fitting of the gold plate over the end of the root, which was also referred to by Dr. Goslee, is possibly in some instances advantageous, but in my experience, after having tried both, I have had no trouble in securing the thinnest possible wafer of gold labially between the base of the crown and the root, by means of the little groove I spoke of, and which is shown in the models running from the canal to the margin of the root, which acts as a reinforcement of the wax, so that there is less liability to distortion than if we leave this wafer extending without this rib.

With reference to the remarks made by Dr. Black, I have always thought he was careful in what he had to say. I have had the opinion that Dr. Arthur D. Black would not discuss a matter he did not know anything about, and his remarks about this instrument have disappointed me inasmuch as he has shown positively and definitely that he knows nothing about this instrument, and what he did say was the nicest compliment he could have paid to the instrument, for the reason, as he says, with the old form of root facings the stiff, unyielding flexibility of the pin made it impossible to reach from the canal to the periphery of the root, labially and lingually, without mutilating the tissues mesio-distally. To select a facer which would reach these flattened, oblong roots from the center of the root to the periphery would mean necessarily mutilation of the tissues mesio-proximately. The object of this instrument is to obviate the point Dr. Black referred to, and I thank him for his complimentary remarks regarding the instrument. (Laughter.)

With reference to the advantage of the cast metal over that of the swaged or the rolled plate, not only in inlays, not only in cast pieces for these crowns, but wherever you are making a surface for an attachment to cement, one of the most desirable features that I see in this casting process is that when we are cementing it over a surface, regardless of the smoothness with which we may form this wax and make our casting, if you examine it under a glass you will find there is a little ridge appearance of the surface. That is a point well worth considering, regardless of how smooth they are, and the cement will adhere to it better. Remove any crown you make and notice the ease with which you can take an instrument and peel off the cement from the perfectly smooth rolled plate surface, as compared with the cast surface.

ODONTOLOGICAL SOCIETY OF CHICAGO.

A regular meeting was held January 11, 1910, with the president, Dr. W. V.-B. Ames, in the chair.

Dr. J. H. Woolley read a paper entitled, "Revelations of the X-ray."

THE REVELATIONS OF THE X-RAY.*

BY J. H. WOOLLEY, D. D. S., CHICAGO, ILL.

Mr. President and Gentlemen of the Odontological Society:

Having had a short notice to prepare a paper I will be brief and you must not expect very much from me on the subject of the X-Ray, but I will only open the subject for Dr. Lewis and others to follow.

The use of the X-Ray as an agent in therapeutics and the diagnosis of disease ranks among other wonders of modern times, such as the discovery of the telephone, wireless telegraphy and the navigation of the air.

The revelations of the X-Ray in dental therapeutics have been as useful and as remarkable as in any other field of research.

You will pardon me if I make use of this occasion to call attention to an instance in which this method of study of diseased conditions in the teeth confirms a position which I took many years ago. and have held to steadily ever since, in spite of opposition and indifference on the part of many of my fellow practitioners.

I refer to the filling of the pulp canals of pulpless teeth. I still feel as I have for years that this branch of our dental practice is not regarded as of as much importance as the subject demands.

Too many dentists today are striving to lessen the labor of their operations at the chair at the expense of thoroughness and the lasting welfare of the patient. Or is it that they are trying to make their operations fit the fee that they are to receive, rather than the successful operation when it is doubtful about receiving fees commensurate with the work?

In the revelation of the X-Ray showing failures in properly filling the pulp canals of pulpless teeth, I am confirmed in the opinion that if sufficient time had been taken in these operations so many failures would not have been shown up in these skiagraphs now before us.

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*Read before the Odontological Society of Chicago, January, 1910.

I will now leave the subject to be followed by Dr. Lewis.

DISCUSSION.

DR. H. L. LEWIS:

I do not know that I can say much to supplement the information that Dr. Woolley has given along the dental line, but I can readily appreciate that there is a great deal of defective work in root fillings. And while I am sorry to see it, in a way, I am glad to be able to see it.

Defective root filling is most noticeable in my work with the X-ray. I am going to show the skiagraph of a case in which one root was filled and the other left unfilled. This skiagraph shows conclusively that the canal left unfilled was the fault of the dentist, but I can readily see it was not due to negligence. It is a mechanical impossibility in a great many cases for the dentist to fill a crooked root canal. As evidence of that statement I have found a large number of broaches broken off in the attempt to fill a crooked root. This goes to show that there has been an honest attempt made to get into the root canal and to reach the apex of the root, but the broach has been broken and there it remains.

There should be some way of getting into these crooked root canals, and the dentist should not be compelled to trust so much to luck in his efforts to save the tooth. Not all roots that are left unfilled cause trouble. That statement is somewhat misleading, but take any number of cases (and I probably have seen several thousand) where an abscess has followed defective root filling, or at any rate improperly filled roots, roots that have been only three-quarters filled, or in which the apex has not been sealed, and one may readily see that most of the abscess conditions are due to this prevailing cause.

If for some reason or other the root canal has not been sealed and germs have been allowed to remain, they will often remain in a latent condition for months or even years without causing trouble, or until the patient's vitality is lowered from various causes, and then an abscess will develop because the end of the root is not sealed and gases, or serum, or some process of decay has been going on in the root.

If there was only a way by which the dentist could get into these crooked roots and clear out all the pulp tissue, or if he could only seal the apex of the root sufficiently, perhaps an abscess would not form whether the root was entirely filled or not. But the problem is to get to the end of these roots and to seal them, so that in the future there may not be an abscess following a defective root filling.

In a great many of the X-rays shown here you will find root canals that have been partly filled and yet have not caused an abscess, and again there are other canals which have been apparently entirely filled and have caused an abscess, so that I do not feel that it is altogether the faulty technic of the dentist that is responsible for all of these abscessed conditions.

An abscess must be due to the general condition of the patient as well as to the condition of the root filling. The root that has caused the most trouble in my experience has been the anterior buccal root of both the lower and upper first molar. It is this short crooked root of the first molar that is difficult to fill, and this is the root which I believe in the majority of cases has caused the trouble. Where there are three, or sometimes four or five roots, one or more canals may escape the dentist, and in this way remain unfilled, although his work has apparently been very painstaking and thorough. I would suggest that where there is any question as to whether the root canals are filled or not an X-ray be taken before the tooth is sealed. There are a number of dentists who have been placing broaches, or copper wires, in the canals as far down as they supposed the apex of the root to reach, and have then had a skiagraph taken. In these cases I have often found still another root canal, one that had not been located or even suspected before. It may be that this root canal is partly obliterated, or one in which the canal is entirely obliterated, and has been easily overlooked. If the patient can afford to have an X-ray taken the dentist should not neglect to make sure of his work in all cases, and should after treating the roots, and before attempting to seal them and fill the tooth, have an X-ray, instead of waiting until after an abscess has formed, to find where the mistake has been made.

The fact that so many root canals may be only partially filled and still not cause trouble (I can readily see) would lead the dentist, after exercising ordinary care and skill, to presume that his work had been done satisfactorily. Defective root fillings are not coming altogether from the men who are careless in their work, nor from the men who intentionally slight their work, although I do find a great many cases of abscess where there has been no attempt whatever at root filling, even cases where a crown has been placed on a pulpless tooth without any attempt having been made to fill the tooth. Of course, there are fakers in all lines, and I do not believe the dental profession is free from them any more than the medical profession. These are the things we have to contend with in all lines of work, and I do not consider the man who will do this class of work a dentist.

Another cause for trouble, that I have quite frequently found, has been from overfilling of root canals through over-zealousness on the part of the dentist to get to the apex, or even beyond, in these abscessed conditions. Perhaps there is nothing to indicate when the apex of the root has been reached; especially is this the case where there has been an extensive abscess. In some cases this overfilling has caused trouble, in others it has not caused immediate trouble.

I have here a skiagraph which is rather interesting. It shows a chloro-percha cone that was passed beyond the tooth, and still it has not caused trouble, and the dentist informs me the cone has been in that position for several years. Frequently the overfilling will appear as a very small mass protruding beyond the apex of the root.

Here is the skiagraph of a case in which a very small amount of chloro-percha had been forced beyond the apex, and here is another case in which the roots were filled to the apex only,—there are four canals and so far as can be seen the work was well done—still you can see a large abscess involving all of these roots. In this case the field had not been thoroughly sterilized, and germs must have been left there to cause the trouble. Where an infection, or pus germs enter and are sealed up beyond the apex of the tooth, it does not matter whether the tooth is sealed clear to the apex of the root or not, you will have trouble afterwards. The whole thing, I think, resolves itself into thorough sterilization of the tooth, and thorough sterilization of the area about the tooth before the canal is closed.

This is the case I referred to in which a chloro-percha cone had been pushed beyond the apex of the tooth for at least half an inch, apparently giving no trouble.

Dr. Davis:

Will you kindly say something about lights and shades and how to distinguish them in the skiagraph from the pathological condition present?

DR. LEWIS:

I am very glad you have reminded me of that, because it is an important point. The average dentist who makes use of the skiagraph does not see more than ten or fifteen of these negatives in a year, and therefore he is not apt to appreciate fully what the slight differences in shade, or in density, mean. In taking an X-ray picture we have to take into consideration the specific gravity of the tissues; that is what determines the contrast in the negative. The differences in specific gravity of the various layers of the tooth—the enamel and pulp—enable us to distinguish the pulp chamber from the tooth proper, and enable us to see the process of decay about the tooth. Farther down the root we get a marked contrast between the root and the surrounding membrane, between the process and the root, and further on we get the peculiar mottled striation of the bone. Where the continuity is perfect, and where there is no interruption whatever in the detail, we can readily perceive the tooth is in a normal condition. But where gas, pus, or serum has accumulated about the apex of the root, or where the membrane is inflamed about the rooth, the tooth will seem to be separated from the process in which it is imbedded. In that case the area where the tissues are destroyed by pus, or other pathological changes, will show lighter than the surrounding process if you are examining the negative, or darker if you are examining the print which is the reverse of the negative. What appears light in this print appears dark in the original negative.

An area about the tooth lighter in appearance than the process would indicate lessened density in that area. In the case before me the substance of the filling is very dense and shows black in the print, while the root fillings which are less dense, show dark, but not black, as far up the canal as they extend. In this manner we secure a distinct contrast between root fillings and the surrounding structure of the tooth, or between the tooth and the surrounding process. Any break in the continuity between the root and the process would indicate destruction of bony tissue and the accumulation of fluid, whether it be pus or serum.

In interpreting the skiagraph, if we will but remember that the density of the object is what gives the contrast, we can readily detect where any part of the process has been destroyed by lack of density and clear detail in that region.

There is nothing that will decrease the density of a tooth except a pathological change has taken place. Oftentimes an inflammatory exudate will, by producing an increase in density, cause a slight darkening in the area, but a destructive process always shows lighter than normal.

In the case I have before me, I had the opportunity of examining the tooth after it had been extracted, and while in this print it looks like a perfect root filling in a crooked root, and it was at first mistaken for a root filling, I could not understand why there should be the amount of trouble it was causing if it was a perfect filling and decided it was a broken broach. After the tooth was extracted and the substance cut down upon it proved to be a rusted broach, and not a root filling.

In the next case we also have an instrument which has been forced about the sixteenth of an inch beyond the apex of the root. The instrument was placed in position to determine whether or not the apex of the tooth had been reached. There is a large abscess above this tooth, and there was no sensation to indicate that the dentist had gone beyond the root. By measuring the instrument, and by having an X-ray to compare with the instrument in position, the dentist is enabled to tell the exact position and length of the root.

In another case a similar result had been accomplished with two wires. It is a bicuspid tooth. In one of the root canals a wire has been passed up to within one-quarter of an inch of the apex, while in the other canal the wire is seen passing through the side of the root, and extending out beyond it to one side at least one-quarter of an inch. This was a case of over-zealousness. It was not neglect nor carelessness; but to make sure that the canals were properly opened the dentist went through the side of the root.

Here I will present another case in which an abscess involves four teeth, and it is difficult to say which of the four is primarily involved, although both centrals are pulpless teeth. One root is filled about three-quarters, and the other has a broken broach extending half an inch beyond the apex. You can readily see it is a broach.

Sometimes teeth are misleading as to the length of their roots, and the dentist goes to the extent of what would be considered a normal root, only to find he has over-filled the root.

I will pass around a number of skiagraphs that you may see them. Some, you will notice, have partial root fillings. Here is one in which the anterior root has been left unfilled, although the two other canals have been filled clear to the apex.

Here is a case that is rather unusual, although at first glance you will not be able to recognize in the negative what really existed. In this case a small abscess had broken through the alveolar process and had produced a periosteal abscess as large as a hickory nut. Upon palpation there was a hard mass which seemed almost like a bony tumor, and it was diagnosed as such before the X-ray was taken. But you can readily see how the small abscess had broken through the process, and pushing up the periosteum had denuded the bone to the extent of an inch and a half along the inferior maxilla.

DR. DAVIS:

How would the X-ray show a bony tumor?

DR. LEWIS:

It would be shown as an increase in density, and would be shown in addition as an interruption in the even striation of the bone. In true bony tumors we get a peculiar whirl-like appearance, somewhat like that found in an osteosarcoma; but a great many of the so-called hard bony tumors are periosteal abscesses or cysts. Whether due to the tension of the pus, which has burrowed under the membrane and has become hard, or whether it is due to a combination of the two, I do not know, but these masses are often just as hard as bone to the sense of touch. In these cases we get lack of density, while in a bony tumor we get an increase in density, which will show darker in the print, and lighter in the negatives.

While we are on the subject of tumors, I would like you gentlemen to give me some information in regard to cystic tumors. I have been unable to secure information along this line that seems at all reasonable to me, and as I have taken a number of skiagraphs in which cystic tumors involving the bicuspids have been shown, I feel that I should understand the pathology of these cases better. I think it has invariably been the bicuspid area where I have found cystic masses that showed practically no density at all in the negative. In such cases it looks almost as if the bone had been entirely destroyed, but to the sense of touch the parts are just as firm as the normal bone. What I would like to know is the pathology of these cystic growths.

A cyst as large as a walnut is shown in this skiagraph, which is in the case of a boy about nine years of age.

In this boy's mouth there is nothing but the cystic swelling to be seen back of the bicuspid. The deciduous molar is still there, partly absorbed, and the X-ray shows the bicuspid almost fully formed underneath the decideous molar. The bicuspid is imbedded in a cystic mass. The inner plate of bone is intact, but the outer plate has been entirely destroyed by pressure. Back of the cyst the first permanent molar is seen imbedded in the process and still back of that is another tooth, the third molar, less developed.

I have had, in the past two months, a number of cases similar to this in which the teeth back of the cuspid have been unerupted, or else there has been one molar and one bicuspid unerupted, while the process has appeared thickened to the extent of an inch or more, with an indurated mass, and with an almost gangrenous condition of the jagged edges of the gum where deciduous teeth have been extracted, and in all these cases I have found either a cystic condition or undeveloped and unerupted teeth. I have been unable so far to learn the real significance, or the pathology, of these cases upon which I hope some of the dentists present will be kind enough to enlighten me.

Are there any further questions in regard to these skiagraphs that I may possibly answer?

DR. WOOLLEY:

Have you ever discovered a peridental inflammation when the pulp canals have been thoroughly filled?

DR. LEWIS:

I do not know that I can answer that question off-hand. I have seen a number of cases of peridental inflammation where there has been no filling whatever in the tooth. It is usual with the first tenderness, while there is a suspicion of an abscess, before the tooth has been opened into, in a majority of the cases I have seen.

Where an abscess has formed there is not apt to be as marked an inflammation of the peridental membrane as there is before pus has broken down the tissues.

It is in the early stages, before the formation of an abscess, that we get inflammation of the peridental membrane. After serum or gases accumulate, so that there is produced a sac-like pouch at the apex of the root, it is difficult to recognize peridental inflammation. This skiagraph shows no inflammation of the peridental membrane, but there is the distinct outline of a little pocket around the root, a small sac which would hold one drop of pus or serum, but the inflammation of the peridental membrane seems to have subsided in this case, and in the majority of cases where I have found an abscess I have not been able to find inflammation of the peridental membrane.

In pyorrhea pockets, several skiagraphs of which I have here, the area about the apex of the root is shown normal, and the continuity uninterrupted. The apex of the root goes up flush into the process without any apparent separation and the tooth looks like a normal tooth so far as the apex is concerned, but all about the neck of the tooth is found a destructive process. This is the way in which to distinguish between a pyorrhea pocket and an abscess. If around the neck of the tooth there is an area of normal process, without inflammation of the peridental membrane, and the apex is found in an abscessed condition, it is evidently due to the condition of the root and to a pathological condition that the dentist has not been able to overcome by filling the tooth.

Here is a skiagraph showing an extensive case of pyorrhea in which all the teeth are involved, not only at the neck but at the apices of some of the teeth which are completely surrounded by the destructive process.

Here is another case of pyorrhea in which one root only is involved; the other roots are apparently all right.

One cannot always distinguish the difference between deposit about a root, and a destructive process, where the calcareous deposit around the tooth is so light in specific gravity that it gives practically the same appearance of density in the skiagraph that pus will give, so that it is almost impossible in some cases to say whether one of these pockets around the neck of the tooth and along the root is full of deposit, or whether it is simply a pocket in which there is pus.

DR. REID:

From prolonged observation and experience in taking these skiagraphs, do you think you are approaching any reliable information in the discovery of the difference between a deposit and a pocket? Would it be possible to increase the specific gravity of a suspicious pocket by putting something in it?

DR. LEWIS:

Yes, that can be done by injecting bismuth paste in these cases.

DR. REID:

Will bismuth paste determine that?

Dr. Lewis:

It will show that there is an abscess pocket, and it will further show the extent and outline of the abscess. Bismuth paste will find its way into the little ramifications and sinuses, if the paste is not too thick, and one can discover a great deal in that way. In cases that have been frequently injected with bismuth paste I often find a great amount of bismuth.

The case which Dr. Brophy showed a little while ago of an impacted upper third molar causing reflex pain is something I have found in a number of cases, and I have often found it in relation to supra and infra-orbital neuralgia. I have done considerable work along this line for the oculist, and in a great many cases I have found not only impacted third molars as a cause for remote neuralgic pains, but in a number of cases have found that an unerupted cuspid was undoubtedly causing reflex eye trouble. In one case, after a thorough examination, the eye was found to be irritated to such an extent that an unerupted cuspid was held responsible for a glaucoma that had occurred. I will not say that the unerupted cuspid caused the glaucoma, because there have been cases of glaucoma in which there have been no unerupted cuspids to blame. But in this particular case it seems more than probable that the unerupted cuspid, in a man about fifty years of age, had either caused the glaucoma or had very much aggravated the case. I have frequently found other remote reflex troubles where there is simply an abscessed condition around the apex of a tooth. An unpretentious abscess may cause neuralgic pains, especially about the ear, if the abscess is in the lower jaw, or about the eyes, if the upper jaw is involved. In one or two cases I have found occipital neuralgia with no cause other than an accumulation of deposit, or a very large exostosis in the upper molar region, which, when removed, quickly relieved the trouble. If I could always secure reports on these cases, it would be of great value in following up results. A number of dentists report their cases afterward, and in this way I am enabled to keep tab on what takes place. Neuralgic pains about the ears are very frequently reflex pains, from an abscess or an impacted third molar.

Dr. Leach:

The subject of the X-ray and its revelations has been and is a very interesting one to me for the reasons that have been given by the speakers this evening. I have used it on several occasions, and the first time I had occasion to use it was when Dr. Fuchs was in the Schiller Building, and I believe the only man in Chicago at that time who was doing X-ray work. That was about ten years ago. With the X-ray I was able to locate a left upper cuspid which could not be seen with the naked eye. It showed as plainly as any of these skiagraphs which have been exhibited tonight. It was a case in which the teeth needed straightening, and I found the X-ray very convenient. Since then I have had several skiagraphs taken of different cases and as an aid in diagnosis the X-ray has been very useful to me.

Dr. Truman W. Brophy:

The more intellectual our people become, the more they are beginning to feel the importance and value of X-ray work, and whenever a dentist is in doubt regarding the development of teeth he should not hesitate to have skiagraphs made. I find that in the field of orthodontia the value of X-ray work is just really becoming appreciated, and the orthodontist who desires to locate a tooth that is not yet visible, or the presence of which he is in doubt about, should appeal to the skiagrapher for help, because the work to a very great extent will shape the course of procedure of the dentist in many instances if a good skiagraph has been made. As we all know, sometimes there are absent certain teeth, for instance, the lateral incisors, and the orthodontist may wait for a long time to see whether they appear. With our present means of diagnosis and the present state of advancement of science and the development of skiagraphy, he is able to settle the question without delay and proceed with his manipulation in the regulation of a denture without waiting sometimes months or years to see what Nature will do in bringing to light a tooth which he presumes may be there, although he is uncertain of its existence.

In pathology the X-ray is indispensable. I would be at a loss now to know what to do oftentimes were it not for the skiagraph. I have in my office three or four big drawers that are full of these plates.

Dr. Lewis spoke about cysts. I have brought down from my office a skiagraph which he made a number of years ago. It was the case of a beautiful girl, who was then about six or seven years of age. This skiagraph shows the cyst, the nucleus of which was a bicuspid tooth situated down low in the bone, so low that there was scarcely any bone left. I never approached an operation with so much uncertainty as to the outcome as in this case. It was necessary to remove the tooth altogether with a great mass of cystic material about it, and when I got it out the layer of bone was thinner than this piece of glass at the lower border. To have gone through it would have caused a fracture, or even a worse condition, because there was so little material that I doubt very much whether I would have been able to have secured union without deformity. By working with extreme care I was able to remove the tooth, which was the nucleus of the cyst, together with the cystic wall and freshened the surfaces of bone so as to get a new exudate. The girl is now fourteen years of age. She is beautiful. The new bone has straightened her jaw so that it is quite well formed. I said to her mother recently when the child was in my office that I wanted to have a new X-ray made, so that we might see just exactly what Nature has done for her.

The other skiagraph relates to the case of a boy just out of the hospital. You can see the condition Dr. Lewis has described in speaking of these cysts. These waves of bone are easily seen. The little cancellated bony tissue has been removed, while the compact layers of bone still remain. You will observe a cuspid tooth down deep in the substance of the jaw, which was the center of the cyst. There was extensive destruction. The cystic development had progressed backward, so that it involved this tooth, and two-thirds the length of the body of the lower jaw from the cuspid tooth back to the second molar. There were three bicuspids present. The nucleus of this cyst was a supernumerary bicuspid tooth.

I have here some other skiagraphs showing beautifully the work of the skiagrapher, with a tooth just beneath the orbit, in contact with the infraorbital nerve as it made its exit from the foramen. The patient had neuralgia; she had received osmic acid injections, as well as deep injections of alcohol without any benefit.

One thing I want to speak of particularly is with reference to those teeth that are sometimes found near the floor of the antrum or nose. Here is a skiagraph showing a tooth directed back into the tuberosity of the jaw. Since I have spoken about the work of the skiagrapher, here is one skiagraph which I have had made over four or five times. This is the fifth plate that has been made of this case, because I was not satisfied with the others. While the previous ones showed a shadow, it was not sufficiently distinct to be able to recognize it without having something better. This plate shows a shadow very distinctly in this case. The patient suffered from neuralgia very severely for seven years. The tooth was directed into the posterior dental nerves as they enter the tuberosity of the jaw to supply the upper posterior teeth. The skiagrapher is not always successful in making skiagraphs of cases. But in this work, if one does not get a good result at first, he should try and try again. In this case we had five skiagraphs taken, and then located the trouble in a patient twenty-six years of age.

There is nothing today in the whole field of pathology that is more important to the diagnostician than the use of the X-ray. There is no improvement that has been made in the last quarter of a century that has been of so much value to the surgeon in making diagnoses as skiagraphy, and I think we make a mistake when we do not send our patients more frequently in cases of doubt to the skiagrapher to have skiagraphs taken.

For instance, a patient came into my office two weeks ago suffering from an enormous swelling of the jaw. The patient had been examined by two or three dentists amongt the best in Chicago, and treated. There was a dead pulp, and after this was opened up there was still an abscess, a discharge of pus, which continued. The dentist got the canal cleaned nicely, and there was no apparent disturbance about the end of the root, yet an abscess was there. The abscess had really terminated at the end of the root of the tooth, and infection had gotten up into the gum tissue, where there was a little sinus. One application of a little bismuth paste cured it. It is all gone. Two days later there was not a single symptom of pus; the patient is cured. These dentists had been trying to inject something through the roots, and the roots had nothing to do with the final trouble.

As to the question of locating teeth and of making a diagnosis in cases of neuralgia, I am one of those who believe that almost all neuralgias that people have, with a few exceptions, are due to a local irritant. I admit there are systemic disturbances, specific disease, malaria, phosphorous poisoning, lead poisoning, and arsenic poisoning, that they lower the vitality of the system and may cause neuralgia. But these are the exceptions. I believe that, no matter where the neuralgia is, in a very large majority of all cases of any kind in any location, the attacks are due to some local disturbance somewhere. I believe trigeminal neuralgia is due in eighty-five per cent of all cases in which it appears to some irritation about the teeth. I made that statement in Philadelphia last February, and one of the most noted neurologists of that city said he never seen a well defined case of facial neuralgia of dental origin.

If you will look at a few of the plates I have brought down here you will see any number of cases where the teeth are in direct contact with the nerves and exerting pressure. It is scarcely possible for a patient to be free from pain when the root of a tooth is making pressure on the nerve.

If we are able to get dentists all over the country to appreciate the value of the X-ray, we will do more toward relieving facial neuralgia than has ever been done by medicines. It is true, morphia will control pain; anything that will make a person unconscious will control pain, but what we want to do is to get at the root of the trouble, get at the base of it, and get at the origin of the disturbance, the cause of the condition, and then by treating our patients rationally, logically and intelligently, we will be able to cure them.

This is one of the most important subjects we have ever had discussed before our society, and if we are able to awaken interest in skiagraphy throughout the country among physicians and dentists who are in doubt and who have patients having ills I have mentioned they cannot treat successfully we will confer a great benefit on suffering patients. Let me illustrate: Here is a patient whose teeth have been treated for a long time. There is nothing to support them. The bone is gone. The dentist has been devoting his time and his efforts and the patient's time in holding out a prospect of a cure when a skiagraph shows the alveolar processes lost, a cure is impossible. Let us take cases of pyorrhea, in which we thoroughly clean all the teeth; we keep on scraping the teeth, and injecting time and again when there is no hope of saving the teeth. A skiagraph would show to what extent the alveolar processes are gone in such cases, and when they are gone to the extent they are in this case, with a sinus above and loose teeth, and are treated for several months by a good man, the hopelessness of affording a cure could have been determined much earlier by the aid of skiagraphs. These skiagraphs would have told the story, and the only recourse would be to have taken such teeth out. Every dentist ought to know that. If I were engaged in treating cases of pyorrhea alveolaris I would always, in the advanced cases, have a skiagraph made, and then I could form a correct opinion as to the extent of the disease, and I would tell the patient whether I could cure him or not, or whether there was any chance of his being cured, and not keep him running along for months, when there is absolutely no hope of effecting a cure.

Dr. Wooley (closing the discussion):

It seems marvelous that in cases where the roots of teeth have been partly filled that no disease or trouble has occurred, although the debris has been pushed down into the root canal to the apical foramen and stopped up the end there, and consequently there have been no bad results, but sooner or later there may be disintegration, although it may take years for that process to take place, and then there will be trouble.

In regard to the canals that are difficult to follow out to their ends, whenever I have been in doubt I have had an X-ray taken. I recall one case in particular where I worked a long time in following the posterior canal of an upper molar, and not finding the canal and not feeling safe to leave in that condition, I had an X-ray taken, and discovered that the pulp canal had been entirely obliterated, so that I felt safe in closing up the tooth, and placing in it a temporary filling, and allowing it to remain for a long time.

Dr. Davis spoke of the impossibility of following tortuous root canals. Where these canals are not obliterated I find that piano wire that is filed thin, but having sufficient shaft strength to force along the canal, using about fifty per cent of sulphuric acid to get greater action than you would with the full per cent, and in the course of time you will soon get to the end of the root.

There is one case I would like to refer to which shows that disease in one part of the body may by reflex pain, pass to other parts and cause paralysis. I had a case come to me of a lady at one time, who had her right arm in a sling. She came simply to have her teeth examined. This was five years after I had been doing work for her and her teeth were not sensitive. I examined the teeth and discovered a very small opening in a third molar, and after I had gotten into it pus escaped. I treated the tooth, and told her to come in the next day. As I have said, at first she came in with her arm in a sling, but the next time she came she shook hands with that hand. This case shows what may take place in these reflex conditions, the originating cause being tooth trouble.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

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Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL

THE RELATION OF DENTAL SERVICE TO THE LONGEVITY OF THE RACE.

At the present time there seems to be a very general awakening regarding the importance of oral hygiene. This is not confined to our profession, but it is being extensively considered by the medical profession and the laity. When we get the public thoroughly interested we may hope to accomplish much for the welfare of the human race, because the condition of the mouth and teeth is really more important as it relates to the general health than is recognized by even the most observant among our own profession. It is not merely a matter of suffering pain on the part of the individual whose teeth are neglected, nor the discomfort and danger of abscesses in the mouth. These are apparent evils which are quickly recognized, and for which a remedy is usually sought. Neither is it the loss of a few teeth or all of the teeth, leading to a more or less serious handicap in mastication. Bad as all this is there is something more insidious going on in a neglected mouth which militates against the individual and shortens his life.

Much has already been written about the deleterious effect on the constitution of breathing and swallowing the accumulations which cling around decayed teeth and diseased gums, but the lesson has not been sufficiently impressed that this constant poisoning of the system tends to make the individual more vulnerable to the attack of dangerous diseases, and renders fatal many a disease which otherwise would have been trivial. In altogether too many instances has a patient mysteriously succumbed to what has been considered by the physician an insignificant ailment, when the real facts in the case would have shown that the cause of the collapse was the previous undermining of the system through the medium of bad teeth.

In many a mouth today the conditions are such that if these conditions could be brought about suddenly the patient would be made positively ill. Nature has grown to tolerate the unhealthy atmosphere because it has been developed gradually, but she never tolerates such conditions without being impaired and weakened in her resistive powers against the attack of disease. That this constant poisoning from bad teeth will materially shorten life there can be no doubt, and the sooner this lesson is learned and applied the better it will be for humanity. To say that the proper care of the teeth and mouths of individuals will add materially to the lengevity of the race is not a mere figure of speech but it is a profound and potent fact.

OBITUARY.

DR. CHARLES B. ROHLAND.

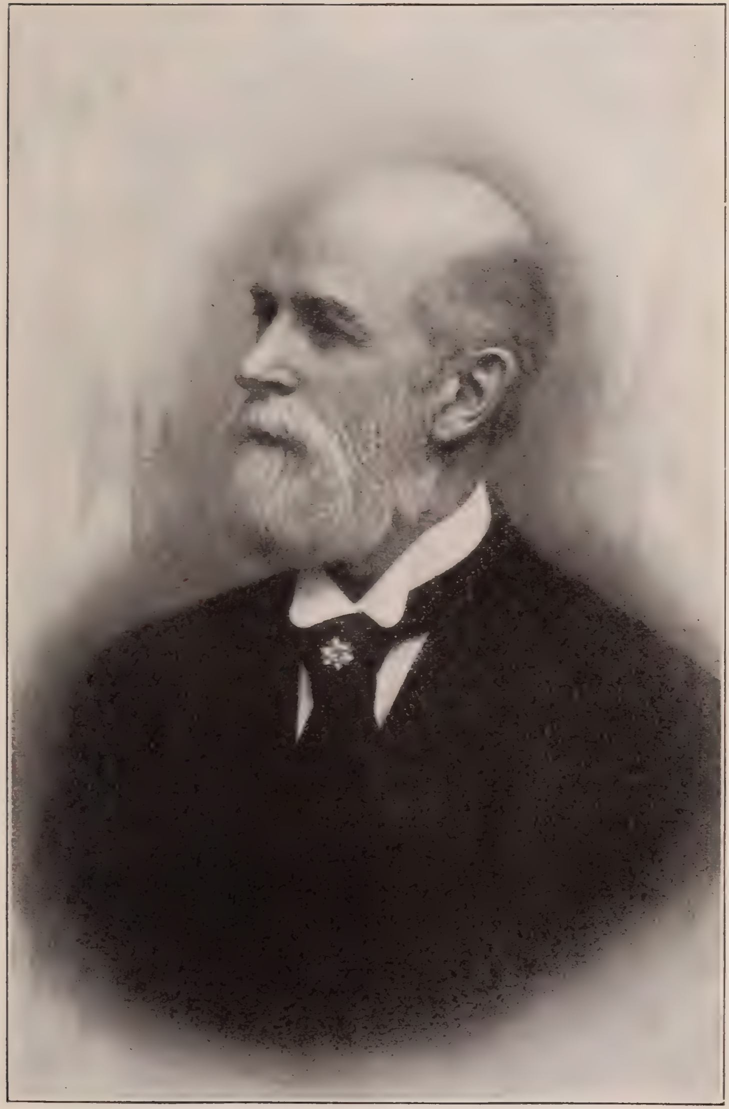
DIED: At Alton, Illinois, on June 29, 1910, Dr. Charles B. Rohland. Dr. Rohland was born March 24, 1845, at Lebanon, Pa. He was educated at the Lebanon High School, the New Berlin Seminary, and at Dickinson College, taking a full B. A. and A. M. course. He studied dentistry in the Philadelphia Dental College and was graduated D. D. S. from that institution. In 1869 he moved to Alton and began practice, where he continued to reside till his death.

He was the founder and first president of the Southern Illinois Dental Society, a life member of the Illinois State Dental Society and had held all the offices within its gift. He was also a member of the National Dental Association, Delta Sigma Delta fraternity, and had been at one time a member of the Illinois State Board of Dental Examiners.

The death of Dr. Rohland has removed from dentistry one of its shining lights. This is not merely a stereotyped phrase, but it is a literal truth. He was the very highest type of a professional gentleman, cultured, clean, capable, and above all most lovable. His wit was of the rarest, keenest, and withal the most kindly that ever fell from human lips. Whenever Dr. Rohland rose to speak in a dental gathering he at once commanded the attention of the entire assembly. This was not because he was ever in the least obtrusive—he was by nature the very opposite—but because his well-balanced brain, backed by years of study and observation, never failed to grasp the essentials of any subject which claimed his attention, and his vocabulary was so clear and incisive, his personality so attractive, that it was always a pleasure to hear him.

He will be greatly missed from the councils of the societies of which he was a member, particularly the Illinois State Dental Society, the membership of which held him in the highest esteem. To know such a man was an inspiration, to be his friend was a great and cherished privilege. His influence among his fellows was always for the good, and he has left the world, because of his sojourn here, a better place in which to live.

To his family and friends the Dental Review extends its sincere condolence.



DR. CHARLES B. ROHLAND.

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

To Remove Plaster from Hands: — A little granulated sugar on moistened hands greatly facilitates the removal of plaster, and leaves the skin in good condition.—*P. G. Puterbaugh, Chicago.*

Practical Suggestions: — A cone-socket chisel used in the automatic plugger is a most useful instrument for breaking down enamel walls, while a large sized spoon excavator 3-16 of an inch in diameter saves much time in cleaning out decay in large cavities, removing tartar, and dressing cement fillings.—*C. C. Markey, Chicago.*

How to Prevent a Mouth Mirror From Being Scratched: — To prevent a mouth mirror from being scratched by a stone, in preparing teeth for crown work, place a moistened microscopic cover glass upon it. If the stone should mar the cover glass, it can easily be replaced, thus saving the mouth mirror many a scratch.—*Chas. H. Wachter, Girard, Ohio.*

A Good Alloy: — Take 129 grains of 24 K gold and 129 grains of coin gold, fuse them, and add 8 grains of pure silver. This gives an alloy of 22.1 + in karats and considering 24 K gold at $1.07 per dwt. and pure silver at $1.25 per ounce gives us a plate that is of very satisfactory color and working quality, at a cost of $1.02 + per dwt. —*R. A. Munro, Spokane, Wash.*

To Repair a Fractured Porcelain Crown: — When by accident the lingual portion of a porcelain crown which was constructed upon a platinum framework becomes fractured it may be repaired. Drill out the remaining porcelain, leave the facing standing, mold wax into the retaining appliance for the porcelain and cast an inlay of gold to fit, thus repairing the crown without removing.—*E. D. Coolidge, Chicago.*

Be Clean: — It seems practical to believe any man of ordinary ability can succeed as a dentist if he will be scrupulously clean about his morals, his habits, his office and instruments, his personal appearance, including his "finger-nails and shoes."

Then be in his office during office hours and in every sense of the word be "on the square" with those who come to him for advice.

He may lose a few of the "undesirable citizens" by these methods, but he will be "de-lighted" with results.—*James E. Dolsen, Evanston.*

To Remove Deposits From Instruments: — Instruments that are boiled in water containing various salts dissolved from the earth in solution become coated with these salts and become unsightly. This deposit can be removed quickly and easily by immersing the instruments in a weak solution of hydrochloric acid and permitting the instruments to remain in the solution only sufficiently long to remove the deposit or until effervescence ceases. In this way no harm will be done to the instruments. The sterilizer and utensils in which this water is boiled can be cleaned in the same way.—*W. D. Vehe, Minneapolis.*

A Handy Water Syringe:— Go to any drug store and ask for an ear syringe, which has a bulb about the size of a walnut, and a flexible tube about an inch and a half long. I use this in the mouth to drop water when grinding or cutting with a bur or stone. It is operated with the second and third fingers and with a little practice it will not interfere with the other fingers in holding the cheek away. In using a rough broach for cleaning out root canals, it is of great assistance as you can keep dropping the water on it, and it flushes the material out the full length of the canal. It is also nice for chilling a bite as it is soft rubber and does not stick to the wax or scratch the cheek.—*W. F. Reber, Chicago.*

The Chip Blower Again: — That first impressions are lasting is perhaps more of a truism in the dental office than anywhere else.

Imagine the impression a dentist makes upon the new or prospective patient, if about the first thing that is done is to take up a soiled looking old rubber bulb and blow a blast of sewer gas into the mouth, in making an examination of the occlusal surfaces of the buccal teeth.

Do not draw perfume into the instrument as one has suggested. This only adds insult to injury. Do not depend upon heating them over a bunsen.

Do not depend on having several different ones, giving each a time to dry and purify, as some one else has suggested. You will be sure to use the wrong one when that desirable party comes to your office, and you will be left to wonder why she never returned to have the work done.

Purchase one of the regulation chip blowers, remove the bulb, go down to the drug store and get a bulb with a metal intake valve in the back, put your new air nozzle into it and when once you become accustomed to its use, you will forget that you were ever annoyed with the old fetid unsanitary variety of instrument. Keep the bulb clean and white by occasionally washing it in ammonia water. —*C. E. Allen, Chicago.*

A Few Rules for the Proper Manipulation of Plastic Porcelain: — First: Absolute cleanliness of both hands and instruments. Second: In incorporating liquid and powder, my experience has led me to use the word "dissolve" rather than mix for its first stages of union and as it gradually hardens, of course, force must be exerted. It is absolutely essential that bone or celluloid instruments be used and I think the short bone points of greater service in packing the enamel into cavity of the teeth from the fact that you can use greater force without the danger of breaking the instrument, as the material must be packed firmly and thoroughly into every part of the cavity. In finishing one of these fillings, good results can only be obtained by allowing the enamel to stand at least thirty minutes after packing, or until the chemical action has ceased. The combination of the different chemicals in the powder and liquid generates a certain amount of heat which assists greatly in the setting of the cement. This heat wave generates in the center of the mass and works towards the center. It then retracts to the surface, bringing with it all the free acid which was in the liquid. This action lasts fifteen minutes from the time of inserton and if coated with paraffine the free action is confined and is detrimental. Thus, I believe we should wait at least thirty minutes before attempting to finish.—*H. G. Morton, Milwaukee.*

MEMORANDA.

INTERNATIONAL HYGIENE EXHIBITION, DRESDEN, 1911.

APPEAL.

A grand *International Hygiene Exhibition* will be held in *Dresden* from May to October next year, under the immediate patronage of the King of Saxony. Among the many groups, which are to include all branches of hygiene, will be the special group "Diseases of the Teeth." The undersigned are entrusted by the Directorium of the exhibition with the organization of the *scientific* portion of this group. In accordance with the plans of the Directorium the causes, the distribution, the prevention, and the treatment of disease of the teeth will be given the first place in our scheme of arrangement, with special regard to social circles. We therefore appeal to our professional colleagues throughout the world to send us objects suitable for the *scientific* portion of this group, so as to enable us to present as complete and uniform a view as possible of the diseases of the teeth and of modern achievements in dental hygiene.

The "Féderation Dentaire Internationale" has already promised its extremely valuable assistance. As intermediaries will act: the general secretary of the F. D. I., Dr. Schäffer-Stuckert, of Frankfort, o. M. for the National Committee of the Federation, and Professor Dr. Jessen, of Strasburg, for the National Committee of the H. C. F. D. I. As for Germany, Professor Dr. Dieck of Berlin has undertaken to communicate with exhibitors.

The following program has been published:

I. Causes of tooth decay.
    Micro-organisms.
    Influence of mode of life and nourishment.
    Relation to general disease of the body.
    Heredity.
II. Distribution of tooth diseases.
    According to age, sex, occupation.
    Significance of unsound teeth for health of nation.
III. Prophylaxis of tooth diseases.
IV. Prevention of tooth diseases,
    In the school.
    In the army.
    In factories and in institutions for the common welfare.
    Through state insurance.

Objects for the exhibition should be notified to the undersigned, if possible, not later than July, 1910, and sent to Dresden so as to arrive by the end of February, 1911.

The chairman of the sub-section "Care of Youth" has requested our group to supply him with *duplicates* of our exhibits—if any are available and so far as they come within the province of dental clinics for schools—for exhibition in his sub-section. Professor Walkhoff is prepared to communicate to the Directorium of the Exhibition all information concerning such duplicates for that (Care of Youth) or any other sub-section or group; as well as all questions of a general nature.

Forms of notification may be obtained direct from the offices of the International Hygiene Exhibition, Dresden, Zwickauerstr. 35, and when filled up, should be addressed to the undersigned—except from places in Germany, whence they should be sent only to *Professor Dr. Dieck, Berlin, Potsdamerstrasse 113.*

The fullest possible co-operation on the part of the profession in all countries, as at the last International Congress in Berlin, will be of the greatest use, not only to the cause of our exhibition, but to the whole profession of surgeon dentists. We desire to show the world that our profession, when judged by the exhibitions in other subsections or groups, is second to none in the domain of hygiene.

Prof. Dr. med. Walkhoff, München, president.

Prof. Dr. med. Dieck, Berlin; Prof. Dr. med. Jessen, Strasburg; Dr. Schäffer-Stuckert, Frankfort o. M., vice-presidents.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, SEPTEMBER, 1910. No. 9

WHAT DENTISTS HAVE CONTRIBUTED TO OTHER PROFESSIONS.*

BY DR. BERNARD J. CIGRAND, CHICAGO.
Professor of Medical History, University of Illinois.

The unusual compliment this society has paid me in inviting, not only the membership, but the relatives and friends to hear this lecture, merits my highest appreciation. I assure you that while the title may seem somewhat foreign to the character of the Chicago-Odontographic programmes, you will agree after hearing the lecture that it is not only in accord with what this organization stands for, but is in strict keeping, with what dental societies throughout the world should inculcate in the students as well the post-graduates. There have been many members of the dental profession, who have designated our calling narrow, and that its practice does not inspire broadness; and in reply, I will say that such an opinion can not be entertained by any practitioner if he is conversant with the general labors and special accomplishments of men of our profession. Our membership is entirely too little informed as to the contribution which dentists have rendered the world. It is to be regretted that too few of the profession have endeavored to become acquainted with the achievements of dental practitioners.

It will be my happy task to surprise the audience with facts which in many instances will provoke the interrogation inflection, from the men who are to discuss this lecture this evening. Besides the idea has been nursed, that scarcely enough had been done by dentists to warrant appropriating an entire evening to the consideration of the supposed meager contribution of dentists. In any event, permit me in the proem of this lecture to acknowledge my deep consideration to the programme committee for its earnest appreciation of the purpose of the lecture, which is essentially to broaden our professional horizon.

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*An illustrated lecture delivered before the Chicago-Odontographic Society, April, 1910.

Same lecture given later before Illinois State Dental Society, Wisconsin State Dental Society and New Jersey State Dental Society.

Introductory to the lecture proper, permit me to direct your attention to a number of rare pictures which I have discovered in my historical researches; they will indicate that the statement so frequently seen and heard that dentistry has never attracted artists to blazon on the canvas nor sculptors to carve into stone the emblems of our profession, is an injustice to both artist and our profession.

Let us leave the busy city of Chicago, and in our mental journey travel to New York, there board an ocean greyhound and after a few days of peaceful rocking, glide into the harbors of Europe. At Rome we are shown in the old cathedral, the painted reproduction of the saint Apollonia, the goddess or patron saint of Dentistry. You will observe in one hand a palm, emblematic of peace or indicating freedom from pain. In the right hand she is holding what some have described as a candle, but history tells us that it is an ancient formed pair of forceps, and grasped in them is a molar tooth. The great field of work to be covered in the lecture permits only a brief sketch of these introductory pictures. The oil painting entitled "The Dentist" I copied with camera, at the Dresden art gallery, and assure you it is far easier to tell about it than to get permission to make the reproduction. This picture in oils is a splendid bit of art, and painted by the celebrated Dou, who distinguished himself by devoting his tion he made the rare painting. It represents the old and early practice of the dentist in his migratory course from village to village, in his career as the embryonic professional gentleman. A distinguished art critic says of this painting: "The dentist with pompous air, and satisfied expression holds up as a trophy the tooth, just extracted, while his victim, a distressed-looking boy, well displays the feeling of one obliged to go through such an operation. It illustrated the evolution of not only dentistry, but art as well, and is valuable as portraying the manner of dress of the early practitioner."

The other picture which adorns the historic art gallery of Dresden, is the one entitled "The Tavern Clinic," and it suggests the possibility of it being the first or origin of this popular and ocular demonstration. It is the work of the eminent painter G. Honthorst, who enjoyed the reputation of being the favorite court artist of Charles I., of England. His subjects usually represent jolly parties, such as actors, roving troupes, and prandial board scenes. This picture is famous because of the rarity of the illumination features, as he was among the most capable artists when it came to illustrating light and flame reproductions. In this picture, pronounced one of his very best, the candle light is very perfect and its reflections upon the other faces and general expressions of all present is notable for its exactness. The Encylopedia Britannica comments on his work as being equal to that of Caravaggio, in the art of reproducing the effect of a single candle. At considerable cost to myself I have had all these pictures which I photographed tinted in their natural colors, and hence you see these as well as all the pictures of this lecture in a natural and artistic atmosphere.

Goddess Appolonia.

We next travel to Munich, where we enter one of the finest and most famed art galleries of the world. Here I discovered a reproduction of the long sought, "The Matrydom of Apollonia," which so interested the researchers, Dr. W. C. Barrett and Dr. Jonathan Taft, but not until this evening have we as dentists gazed on this remarkable picture. It has often been said by not only members of the dental profession, but the medical as well, that there are no allegorical paintings or pictures of dentistry, and this picture refutes the statement, since this historical allegorical painting, by Jacob Jordens, was conceived with this phase of art in view. I have also a picture of the great artist who thus remembered our goddess. The "Court Dentist" portrays the gradual rise in the position of the practitioner in modern times, but also indicates the dreaded approach of the man with the cold steel. In the picture "Questionable Confidence" we have a very delicate representation of the dentist examining the oral cavity. Hidden away in his right hand we see the old-fashioned turnkey, and while the patient manifests by the appearance of the face every possible confidence, her holding the operator's wrist with her right hand betrays the fact that the confidence is not without doubt.

In the Berlin art gallery we have "In the Dental Reception Room." From the art galleries of Germany we now speed to Paris, there to begin the real mission of our tour, namely, that of illustrating what dentists have contributed to other callings. Here in the gay, yet scientific and artistic city of France, we are led to the old college of St. Come, where are still to be seen the various ancient and modern methods of surgical procedure. We are shown the instruments once used by the distinguished dental surgeon, Ambrose Paré, whose labors in general surgery have attracted the world to his accomplishments. Prior to his day the surgeons adopted various methods to stop the bleeding of vessels. The cruel practice of searing the lacerated parts with redhot irons or styptic liquids was the one quite generally in vogue, though the inserting of pine and hickory sticks into the arteries or veins was also deemed proper practice. Not until the dentist, Ambrose Paré, became interested in the problem did humanity receive its first form of anesthetic, in that he discovered and donated to general surgery the invention of ligating the artery with cords or strings. He had seen the terrible horrors on the battle fields, where he served in the capacity of staff surgeon, and the indescribable tortures which the injured soldiers endured, awoke in Paré the ambition to correct such suffering. His new method of painlessly binding the arteries and saving lives astonished the world, and by this great contribution to general surgery made major operations bearable and the saving of human lives possible. To Ambrose Paré the general surgeon owes untold debts of gratitude not alone for the invention of the ligature but for countless other instruments employed to this day in surgical procedures, and for his treatment of gun-shot wounds, showing that they were not burns, demonstrating his province by firing shots into bags and packages of powder without causing flames. The swan's-beak forceps, for dilating wounds, so essential in today's surgery, came from the inventive mind of the dental surgeon Ambrose Paré of Paris. He was also a student of the heavens and his diagrams of the comet of his day was recently published in the world's press.

From the French capital we travel to London, where we immediately come in touch with the great work of John Hunter, whose deep interest in humanity in general led him to spend more than $360,000.00 on his famous collections of comparative anatomy. This same great assortment of animal specimens, forms the basis of the world famed Museum of Royal College of Surgeons of London. If there are any dentists of this day who feel they have contributed liberally to the world's collections, it might be well for them to contemplate the enormous expenditure of Hunter before venturing a boast of their donations. Three hundred and fifty thousand dollars in those days was an enormous amount of money. Aside from this great contribution it must not be forgotten that Hunter was the most profoundly informed scholar on anatomy, and added considerable to the knowledge of this basic study of man. He was the surgeon general of the British forces in 1790 and his contributions to the healing arts place him in the first rank of English scientists of his time. But not since the days of Aristotle has there lived a man who did so much research in the animal kingdom as was done by John Hunter, and his unselfish interest in anatomical discoveries is well expressed in that his splendid museum with its thousands of valuable specimens was bequeathed to the public. While visiting this grand exposition of human and comparative anatomy it afforded me untold pleasure to reflect that it was a dental surgeon who had contributed thus handsomely to the world's storehouse of knowledge, and I went to his grave to pay my humble respects to so brilliant and broad-minded a scholar.

There is another Englishman of whom I will speak before we leave that historic island. It would please me to refer to many other Englishmen, but the time will not permit me to include all in this first lecture on the subject, but I am impelled to include in the group the well known and much beloved Dr. J. Leon Williams, who recently was a guest in America. This talented dentist, now living in London, has contributed considerably to the world's affairs, and I am surprised to learn that so little of his literary attainments are known to the dental profession. Some of our most exquisite volumes of recent years are his product, and it is to be regretted that dentists are so little informed on the accomplishments of their own distinguished members. Dr. Williams has contributed not alone to the literary but to the artistic as well. His work entitled "The Haunts and Home of Shakespeare" is a classical production; more than twelve thousand copies of the $12.00 a volume have been sold, which certainly is a high compliment to his genius. He has also studied the art and science of photography, and gets superb results with the lens, and his works in this particular field are seen in the art galleries of the world. His studies of "Irving's Sleepy Hollow" deserve especial comment. This work, published by Putnam & Sons, was issued in a magnificent holiday edition, and has attracted considerable attention on both sides of the sea. The historical volume entitled "Sicily, Land of the Departed Gods," is an interesting book relating to unpublished romances of this beautiful spot, and illustrated by Dr. Williams' own artistic productions, and has found its way into the choicest libraries of the world. His writings first attracted my attention in 1895, fifteen years ago, when I read a most fascinating illustrated story in the Cosmopolitan Magazine. It was entitled

Jacob Jordaens.

"A Christmas Legend of King Arthur's Country." He gave new life to the old falling and decaying castles in the valley of Somerset, England. I was charmed by his language and was impressed with his story; he wove a splendid legend and made one feel that he lived in the days of the heraldic King Arthur. The pictures which embellished the pages were the suggestion and product of his artistic mind. It afforded me great comfort to know that one of my own profession was the author of these highly prized sketches. While Dr. Williams was in Naples he took up the study of art under learned artists and mastered the elementary phases to a point where he was recognized as possessing high art talent, as was evidenced by his having painted from nature a picture which was sold for one thousand dollars. Now let us take the ocean greyhound and while on the bosom of the Atlantic let us telescope time and make it possible for us when we land in old Boston to write the date of 1770.

We glide up the beautiful harbor of Boston, the continental people are gathered before the statehouse discussing the tax inflictions and other grievances of the colonies against England. The mother country has sent more soldiers to intimidate the Americans, and in the first conflict of-arms, in 1770, known to history as the Boston Massacre, we find that a dentist was among those who was fatally shot. He was a lad in the office of the Greenwoods, and he was one of the first to resist British interference in strictly colonial affairs. Hence to the glory of our vocation belongs the credit of having at the earliest outbreak of the revolution a representative in the ranks of the mob which gave the English soldiers the initial demonstration of American patriotism. The young dentist who lost his life in this heroic skirmish was Mr. Samuel Maverick, and he deserves our gratitude and respect.

Before the statehouse in 1775 we again find a congregation of patriots eagerly discussing the approaching fray with the mother country. In the midst of these earnest and defiant men, we see a heavy set, sturdy and enthusiastic gentleman. It is Paul Revere, a dentist, and he is doing all within his power—and he is a man of much influence in Boston—to arouse the sentiments of the continentals to strike in defense of their rights and be prepared to offer physical resistance to the tyranny of England. He is indeed one of the leading spirits and his advice is heeded, since he is known to be of a courageous character. On April 18th we see him arranging with other patriots to be the sentinel who is to awaken the citizens and farmers as to the exact movements of the British, his harzardous midnight ride, with which you are all familiar, the poet Longfellow has blazoned on the pages of literature with these rythmic lines:

> "Listen, my children, and you shall hear
> Of the midnight ride of Paul Revere."

It was an important dash which this dentist made, and the history which follows in the wake of his galloping horse has not yet been fully written, and for generations to come will be heralded to the rising youth as one of the dramatic and spectacular events of our nation's morning time. Not only did he arouse the neighbors on the way to Lexington, where the ammunition and the arms of the colonists were stored, and which he was sent to protect, but he also with all speed, dust-covered, exhausted, halted his horse at the side street of Lexington, where, in a small frame house Hancock and Adams were in hiding. He awakened them and made their safe escape possible. Without this warning the patriot cause might have been nipped in the bud—for had these two gentlemen, the soul and the spirit of the revolution, been captured, our war for freedom might have been postponed for years, with the possibility of never having come. It afforded me greatest delight to tramp over these scenes, saunter about the old skirmish lines, loaf about the historic stream, and drink in the sweet patriotic sentiments everywhere embossed upon the stones, the bronzes and the wood. It was a truly serene pleasure to contemplate, that the "shot which was heard around the world" was made possible because of the daring patriotism of a Dentist Paul Revere. His old homestead is being cared for, by patriotic societies, and in it you may view many ingenious things which have come from the dextrous hand of this early craftsman of our calling. Among these tokens we see beautiful silver vases, handsomely engraved silver and metallic dinner sets and a great variety of carvings, all of which clearly indicate his dexterity and love of the manual. Besides being a practicing prosthetic dentist, carving and fashioning artificial dentures, he was also an engraver of colonial fame. He was called upon to do much of the illustrating of the New England states, and designed many artistic pictures. His rude sketch of the Boston Massacre is the foundation of the present time handsome oil paintings we see in our halls of patriotism. But some of the best work of his hands was not alone engravings. He was an expert at founding bells and throughout the states today you may hear the peals of bells whose tones were the implantation of Paul Revere. At the battle of Bunker Hill one of the first to lay down his life was Dr. Joseph Warren, a physician, and real leader of the rebellionists. When the battle was over the dead were hastily buried, and some time after when Massachusetts wished to more definitely remember Warren, the remains were dug up, and considerable difficulty arose as to the identification of the body. Several of the dead seemed to answer to his description; matters grew upleasant, as the population had criticised the authorities for waiting as long as they did before showing consideration of this distinguished patriot. In the midst of these discussions Paul Revere intimated that he might be able to identify Dr. Warren' body, and he with the committee departed for Bunker Hill, where Revere, after a careful examination, pointed out the body of Warren. He was able to identify him because of an artificial dental appliance he had constructed for the doctor. Dr. Warren's physician and friend also corroborated the testimony of Revere, in that he recognized the obliquely broken natural front tooth. Hence through dental identification of the dentist Revere the real grave of a patriot was established. But the descendant of the Huguenots, Revere, has contributed another memorable thing which must be mentioned. When the question of the adoption of the federal constitution was before Massachusetts, there were grave doubts as to that

From Williams' King Arthur Legends.

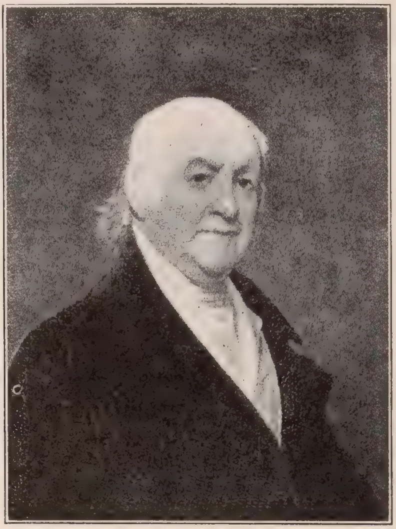
commonwealth accepting this document as the basic law. For days it seemed that the legislative body which had the problem in hand would vote to reject the instrument. Samuel Adams, the giant in debate and the power in the law, cast his vote with the opposition, and as it required but a few changed votes to carry the measure, Revere called on Adams and so thoroughly impressed him with the merits of the proposed constitution that the sturdy orator took the floor and advocated the adoption of the federal constitution. Hence this to the credit of the dentist, Paul Revere, for having turned an entire and influential community from the anti-federal to the loyal constitutional party.

At the battle of Bunker Hill there were many dentists, but prominent among them the Greenwood people. John Greenwood was an expert carver of dental substitutes, and when the revolution broke forth the necessity for fifes and other military instruments became imperative and he applied himself and furnished these needed instruments. The fifer, John Greenwood, Jr., and the fife manufacturer, the father, contributed considerably to the war of Independence, in fact, one of the historians, Lossing, tells us that this martial music did much toward keeping up the spirit and made the ragged continentals forget their appearance. Young Greenwood not only played at the Battle of Bunker Hill, but he lent inspiration to the revolutionists under General Putnam, General Benedict Arnold and was promoted fife major. He served several years and was in that capacity at the battle of Trenton, where he displayed his musical and heroic qualities.

We are still in Boston, and will now take carriages to the old Longfellow home, where Dr. N. Cooley Keep, dentist, distinguished himself as being the safest professional in the learned city in the administration of anesthetics. He has been selected to give the ether, which he helped to discover, to Mrs. Longfellow during confinement. This was the first instance in history of this anesthetic being administered in obstretrical cases, and this credit belongs to the dentist, N. Cooley Keep. His name is also connected with what has been pronounced the most remarkable case of circumstantial evidence ever brought before an American jury. The terrible and surprising disappearance of Dr. Francis Parkman and the arrest of Professor John W. Webster of the Harvard University, aroused the entire country. The trial lasted many weeks, and the most learned attorneys of New England were engaged in this remarkable trial. The murderer had practically destroyed by fire every possible proof of identity, the few remaining elements of the osseous tissue caused the experts of anatomy to tussle, to quarrel, to wrangle and deny every item which seemed to lead to identification. But a mere trifle left unsolved—the victim's artificial teeth—were still partially in assemblage, and his dentist was Dr. N. Cooley Keep, who after some days of examination was ready to take the stand. For eleven days the attorneys had waged unrelenting war upon the witnesses and upwards of one hundred direct witnesses were heard. All, however, were of a circumstantial nature, and not until they heard from the dentist was there anything of a definite and direct character. When he took the stand he made the most convincing and the most emphatic sentence ever given in so notable a murder trial. What he said brushed away all the suppositions of the days gone before, what he testified lent strength to the truth and his reply to the question "What exhibit have you in your hands?" sent dismay to defense and accused. He said: "These are the teeth of Dr. Francis Parkman." A lull fell upon the court, a real witness had been found whose testimony it would be impossible to break down and from the hitherto cold and defiant murderer came the confession that he killed the millionaire and that Dr. Keep's testimony was correct. This is considered in criminal annals as one of the most convincing and remarkable identifications. It gave dental identification a recognized place in court proceedings.

We now turn to the busy streets of Boston, and find the dental office of one little known to dental eminence, yet in literary circles he was considered distinguished. Strange indeed that we of his profession are so little acquainted with his profound learning. This man whose office we visit has gone to his reward and he was the eminent scholar and authority on Italian literature, Dr. Thomas William Parsons. It has afforded me greatest pleasure to read the writings of this broad-minded gentleman and dentist. Thomas Bailey Aldrich in the Century Magazine, July, 1894, wrote a lengthy and appreciative article on Dr. Parsons, which is well worth reading.

Does it not lend comfort to us to know that a man of such learning was a dentist? Does it not make our hearts beat quicker to learn that one of such great learning would remain true to our vocation? Indeed it inspires us all to feel the ennobling influence of these good and great men. They did great things for humanity; they pointed out new paths and brought new flowers to our tables and furnished new prayers for us all. Let us remember them, let us revere and make known their contribution—this will not detract from our own, and will harm none who loves his profession and will certainly make our own membership as well as the listening visitor and outside readers respect our calling all the more. It puts life into the statement that we claim sturdy men in the ranks of our profession and proper regard for their accomplishments will only reflect credit upon ourselves.



Paul Revere.

There were men who served their country on land and on sea when she was in the turmoil of war, and ere we leave Boston let us reflect on the patriotic career of Josiah Flagg, who volunteered as a soldier of the War of 1812, was captured and taken to England, where he by his knowledge of general surgery attracted the attention of Sir Astley Cooper, who when Flagg was on parole, had him assist him in the great clinics of the London Hospital. The distinguished Englishman was so impressed with the dexterity of Flagg and was so pleased with his progress in the art of surgery, that he requested a painting of him, and directed one of London's artists to produce it. This was indeed a high compliment, since a man of Cooper's eminence would not have ordered such attention if our dental practitioner had not merited the compliment.

Now let us take our imaginary train, and stop at Hartford, Connecticut, there to visit the haunts of the distinguished Horace Wells, whose contribution to humanity is possibly the most important ever given by any person of the present or the past. This mild-appearing dentist gave a balm to the world, which neither tongue nor pen can fully portray. He was, as you all know, the discoverer of prolonged anesthesia as employed surgically. It is gratifying to learn that the world at large has thus recognized his discovery. You will find a beautiful bust of him in the Army and Navy Museum at Washington; you will soon hear of the unveiling of a handsome statue of him in Paris, and now as we stand before his monument in the historic city of Hartford let us remember that his was indeed a superlative contribution to the comforts of suffering humanity. When I stood before that monument and reflected what I had seen in the College of St. Come, Paris, where are still the hitching posts where suffering patients were tied while the surgeons labored, disturbed by the crying, screaming and torture toned yells of the sufferers; and when they there showed me the so-called wooden beds and racks upon which patients were fastened while undergoing indescribable pains in the surgical treatment of injuries, then as I stood before his monument I seemed in a dream, unable to comprehend the sweet sleep which the great, —gloriously great—Wells had bequeathed to suffering humanity. Here under his spell they might smile, they might laugh, and they might dream, while the surgeon prowled around in their vitals in search of physical disturbances. The surgeon could plow his knife through the sensitive muscle and use his chisel or employ his saw, all has lost its effect--the sufferer is asleep—in reminiscence playing among the fragrant flowers of the lea—unconcerned in the disturbed and excited condition of the surgeon.

While we stand before this statue and monument let me bring to your attention the kindness of Dr. Charles McManus, through whose generous consideration we are able to look upon this beautiful picture. In remembrance of him as well as his venerable father, who has done more to embalm into history the memory of Horace

Wells, I frankly acknowledge my gratitude for their years of encouragement and kindly appreciation.

With speed let us now depart for Syracuse, New York, where Dr. Amos Westcott once was the mayor of this center of learning. He contributed considerably to general inventions, though his rotary churn is possibly the most noteworthy, since he was among the first to demonstrate that by rapid rotation the milk and the cream would separate. The introduction of that most valuable element in prosthesis and surgery, plaster of Paris, is accredited to him. Dr. Westcott was a profound student of botany and mineralogy and his finds and classifications in this direction led the Rensselaer Polytechnic Institute at Troy, New York, to confer upon him the honorary degree of Bachelor of Natural Sciences, an unusual recognition from a high class school of science. His success in the fields of science led him to receive highest offers to teach in the universities of America, but his love of the profession induced him to remain in general practice. Possibly his greatest fame rests in the fact that his son, whom he thought a poor success as a laboratory assistant, drifted into the world and wrote the most popular novel of this generation—"David Harum"—which has found its way into dramatic and other forms of entertainment and instruction.

We now hasten to Buffalo, New York, and visit the home of Dr. W. C. Barrett. I shall never forget one evening I spent with this great man. We were attending the National Faculties Association at Niagara Falls, and after supper we were sitting in the moonlight at the Prospect Point, gazing now on the water, merrily dancing toward the falls and looking into the sky watching the swift moving clouds chase each other in their attempt to hide the moon from the earth. I spoke up and said: "Well, Doctor Barrett, what phase of dentistry do you most enjoy—the art or science side?" Quick came the answer: "Let us not talk dentistry. I would rather, on such a divine night, speak of nature. Of old mother earth when she was yet in her babyhood or the days of old Rome when she sat on her seven hills and ruled the earth." We talked, but I was the inquisitive lad, and he the venerable tutor. He spoke of the days of old Rome with an aptitude equal to one who had actually lived in those stirring times. He portrayed the Arena, and pointed out its merits and its demerits, as considered in the comparative equation of the world's great and daring progress. It was an evening I shall long remember, but I only bring this to your notice to show you the captivating and fascinating way he held you when you came in actual contact with his soul. He was a great reader, a great student and a profound thinker, his mastery of the cosmic evolution and all that related to the formation of the earth, together with the Roman period, which he thought the most interesting or highest crest point in enormous entertainment as well as heroic effort of government, was certainly wonderful and places him well up among the informed on historic things. He loved to go among the ruins of the old castles and read romance and heroism in mouldering stones or the climbing vines. Barrett was a man of influence in civic and educational affairs as is seldom found in any community. His efforts to have an understanding in medical as well as dental affairs as relate to Europe and America, should endear his memory as an unselfish contributor to higher standards of medicine.

Dental Identification..

Then there is the broad literary career and artistic life of Dr. John R. Spooner, whose engravings of Shakespearean literature are pronounced the finest in existence. It was this dentist who restored the famous Boydell pictures of the themes of Shakespeare, and this has made him famous in literature, though he is practically unknown by his own profession. He published the well known books, "Biographical and Critical Dictionary of Painters and Sculptors," a volume of 1,200 pages, and recognized as the best and most reliable work on that subject. His work entitled, "Anecdotes of Painters, Engravers, Sculptors, Architects and Curiosities of Art," ranks high as a reference work on these variety of subjects. He also published a new testament and had the most talented men of Italy paint the pictures, which he assisted to execute in copper and steel plates. This work is very rare and commands a high price, and is valued as among the best illustrated Bible in the English language.

A brief visit to the home of Dr. T. S. Hitchcock, Seneca Falls, New York, will be profitable, since his carving and his general artistic career have attracted considerable attention. The subjects I show you are "The Last of the Mohicans," "The Buffalo Herd" and the "Judgment of Paris." In this latter carving he has indeed produced a great and exquisite bit of art; it has been pronounced as worthy of recognition by artists in general, because of its delicacy of arrangement. He has the largest collection of cameos in America, as many as 700 different varieties. His museum of guns, pistols, armor, swords and powder horns has attracted historical societies and historians and artists throughout the country. He has also a large and valuable collection of flora and petrified woods and in the subject of petrified woods he is considered an authority, and much of his labor in this direction has received governmental recognition. He is a personal friend of ex-President Roosevelt, who cherishes as some of his belongings the carvings of Dr. Hitchcock.

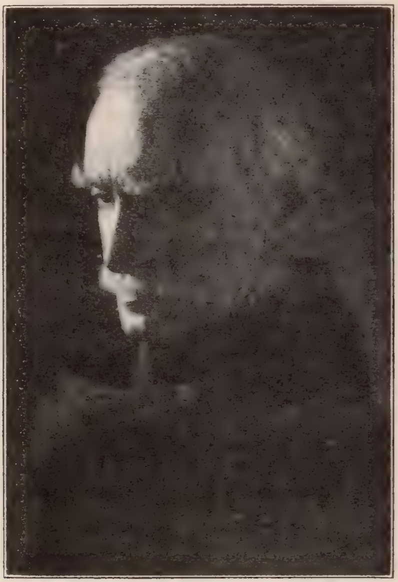
The imaginary train upon which we travel, now lands us into the City of New York, and here, as might be expected, there are also a few dentists who have contributed to the general progress of mankind. The first man to receive our consideration is the eminent dentist, Dr. Norman Kingsley, who has done so many memorable things, both in the profession and out, that one scarcely knows where to begin or where to leave off. But his early manifestation of a love and a capacity for art led him to carefully and studiously apply himself in the research of proper or normal physical outlines. He toiled along these lines until much expression of art found its way on paper, in plaster, on wood and in marble. He was the inventor of the blowpipe which has found its way into other vocations, and this same invention he perfected so as to make the now popular pictures known as pyrographic illustrations. By his artistic ability he was able to reproduce upward of a dozen of Rembrandt's famous pictures, and they are most creditably produced. The picture which he made of himself deserves especial comment, as it is lifelike and demonstrates his dexterity. It will be good news to some to know that his Whitelaw Reid bust is estimated the best yet made of this distinguished diplomat, and his most noteworthy effort, the "Head of Christ," is preëminently the highest point in his art career. A long and interesting story goes with this creation, but time will not permit me to other than superficially comment on it. Dr. Kingsley had as a praiseworthy ambition, the making of a true face of Christ; he labored industriously and with great pains to carve the Master's face. He studied the various sketches by the eminent artists; he carefully analyzed the face as portrayed in the oils, and finally after considerable endeavor furnished the world what may easily be classed as the faithful likeness of Christ. So well did he perform the task that when Dr. Howard Crosby wanted a good picture of Christ for his new life of the Savior, he chose that of Dr. Kingsley's as the best and blazoned it on the cover page of this high art and great literary religious work.

It would be difficult to pass the name of Dr. A. W. Harlan without a word of comment. He was of a literary turn of mind and his argumentative abilities were well known throughout the land. He was deeply interested in civic affairs and a student of sociology.

Then there is Dr. John B. Rich, who set the happy example of illustrating what a man can do when the time set by the Bible, three score and ten, has made its appearance; he is considerably older than that and has assumed at so late a period in life the work of instructing others in the proper physical care of the body. He is an authority on strength culture, and New York City does not possess an individual of his physical endurance at so ripe an age as Dr. J. B. Rich. His stand for small parks, outdoor gymnasiums and kindred breathing spots in the city of New York has found response in many a city in America.

Next we study the unexplainable career of the dentist Dr. J. B. Newbough, who distinguished himself by painting remarkable oil paintings for the new Oahspe Bible. It is claimed he never took lessons in this art and that while under a psychic spell he reproduced at such rapidity and with such exactness scriptural pictures that his product has been pronounced the wonder of the present day art world. Further, it is the claim of those who saw him operate on the canvas, that he did so with both hands at the same time. This feat had never before been attempted, and his action while in the effort of painting was indicative of some superhuman influence.

Many others of New York deserve mention. Roswell O. Stebbins, who did much in the fields of mining inventions and who was one of those who accompanied Dr. Cook on his Arctic explorations and for years had been recognized an an explorer of distinction. He had traveled in every direction of the compass and was courageous enough to penetrate the ice-bound north far beyond where mortal ventures to go. His career would not only be interesting, but highly instructive, but time will not permit, and we must speed on in this historic journey.



T. W. Parsons.

To leave New York without halting at the office of our distinguished friend and literary gentleman, Dr. R. Ottolengui, would be doing our subject of contributions to other than dental fields an injustice. This dentist has been a worker of the Roosevelt kind, absolutely strenuous with the letters capitalized, and he has accomplished much which merits our consideration this evening. His successes in the province of natural history, in fine art circles, and in the literary realms impels me to speak inclusively, since he has won recognition in these varied vocations and has demonstrated that the dentist can be serviceable to his profession and to humanity in general without destroying or marring his professional ideals; in fact, his career well illustrates quite the contrary, as it broadens and eliminates from his system as nothing else can, the small and limited horizon which unfortunately forms too often the scope of the dental practitioner.

Dr. Ottolengui, of New York, who has contributed considerably to the general progress of dentistry, has written me the following under date of April 14, 1910: "I have written several novels and twenty or more short stories. G. P. Putnam's Sons of this city have published for me in book form 'An Artist in Crime,' 'A Modern Wizard,' 'The Conflict of Evidence,' 'The Crime of the Century,' also a book of short stories under the title of 'Final Proof.' In this book the first story entitled 'The Phoenix of Crime,' was really a novelette covering over a hundred pages. In it the identification of a dead body is accomplished even after cremation, by examining the so-called ashes, collecting the teeth and registering on a dental chart those which were found to have cavities as well as the roots of those still held together by partly destroyed bridgework. This idea came to me when I had occasion once to transfer the cremated remains of a friend from one urn to another, and I discovered all of the teeth practically intact except that the fillings had been melted out of the cavities, but the platinum framework of the bridgework had retained its form, the porcelain of the teeth being only slightly melted. Shortly after the publication of this story the body of a murdered girl was discovered in one of our suburban towns, and it was at first supposed to be a girl who had disappeared some ten days previously. A doubt, however, arose and her identification was established by making a dental chart of her teeth, as suggested in the story. My novel, 'An Artist in Crime,' in addition to being published in this country, was published in England, was published in an English edition in Germany, and subsequently was translated and published in a German edition. This German version was subsequently published in one of the German papers in New York City. The story was also translated into French and published in Paris.

"In my novel, 'A Modern Wizard,' there is a fairly complete account of a murder trial, in the course of which the prosecuting attorney explains the relative value of circumstantial evidence as compared with material evidence. A legal writer in Colorado did me the honor of quoting my definition of circumstantial evidence into a textbook on criminal law. On another occasion, in an important trial in Philadelphia, the district attorney read this entire passage from my book to the jury."

The practitioner little dreams of the importance of his record from the standpoint of the civic service; but if he is reminded that in our own country hundreds of people have been identified, and by this means given over to the hands and care of the real relatives, rendering to these stricken relations an unusual and worthy service, he would be more concerned in the definite and exact entries on his books of not alone the work which he performs, but a record of the works of other dentists; and by this accurate record could be of definite aid in identifying the remains of bodies which by no other means could be certified.

The great fire of the Iroquois Theater, which, with all its horrors and indescribable suspenses, had an unusual comfort in the fact that hundreds of these unfortunates could not have had a family burial had it not been for the dental records which dentists supplied and unmistakably identified. By this civic service the parents, the relatives, the friends and in some few instances, the community, were permitted to claim the dead and render in their respective names the funeral services and accord to their graves the correct marker and monument. Little did the professional dentist think, when he recorded the character of his work, that he would some day come to the civic call of pronouncing the dead by the legal name, and have the state authorities receive his testimony as the final court of identification.

This stamps the services of a dentist in a higher and more important character than he had been conscious of attaining, and the result is that with a due and higher appreciation of his civic service, he will be more anxious to make his entries accurate, and further may receive a consideration at the hands of the authorities for his interest in humanity other than dentist.

When you stand before the government monuments on the fields of battle, which since have become the national cemeteries, and observe the markers, large and small, designated "To the Unknown Dead," the thought comes, Why this impossibility of identification? The answer from the government comes: "Because there was nothing upon which to found identification when the government finally determined regular burial."

Here, then, comes the true and civic service of the dentist. Why should not all the generals and the under officers be subjected to examination by some dental surgeon and have a correct chart made of his dental organs and also a model in plaster, all of which could be filed away with the surgeon-general's office or the divisional general's headquarters. A similar chart of the soldiers in both the regular and the state military divisions could be enforced. The value of such a procedure is far beyond the estimate of any person's imagination. The work would be quickly and accurately accomplished and the dental practitioner in the army would be of invaluable aid when it came to identifying the dead general or his soldier boys. This work belongs to us, we can inaugurate much in the field of civics and it is not for us to wait until the public comes to us and urges those things, for they are not familiar with our capacities and are not in a position to contemplate our fields of operation.

Norman W. Kingsley, M. D., D. D. S.

I had nearly forgotten to proceed further with Dr. Ottolengui's contribution, because I was interested in the far-reaching influence of the items of identification found in his novels.

Outside of writing fiction he has been most interested in the study of entomology, and has been a collector of butterflies and moths. He is one of the charter members of the New York Entomological Society, and from collecting almost everything, he gradually became sort of a specialist in the Noctuid or Owlet moths. Of these he has given especial attention to a single group, known as the Plusias, and has in his collection specimens of every known species north of Mexico with the exception of one, and this is represented only by a single specimen in the British Museum. About ten years ago he published a monograph of this group, illustrated with photographs taken by himself from actual specimens, and in this monograph he described about fourteen new species and redescribed about fifty. It may be of interest at this time to mention that the Smithsonian Institute had an entomologist in the party which explored Mt. McKinley at the time when Mr. Cook claims to have reached the summit. When this gentleman brought his material back to Washington, some of it was sent to Dr. Ottolengui for indentification, and he found two new species of Plusias, which he named and of which he was permitted to keep specimens. One of these he named Arctica, but subsequently the entomologist of the Smithsonian discovered that this name had already been used for a Siberian Plusia, and he renamed it after our dental friend, calling it Ottolenguia.

In addition to entomology, he has been much interested in photography, and gave his sympathies to the so-called Secessionists' School.

All of this fully attests that there are men of our profession who are contributing to progress other than dental and that the world in general appreciates their efforts, which in some instances are remote from being meager.

From New York we cut across the historic grounds of New Jersey and reach the city of Philadelphia, where the first person to be considered is the gallant Frenchman, Joseph Le Maire, who came to this country with Count Rochambeau, in the hope of being of service to the colonial cause. He was a well educated Frenchman, and completed his medical studies in Paris, and his surgical skill was of invaluable aid in the surgeons' department of the American revolution. But his greatest contribution was the transplanting and implanting of teeth. While Hunter receives the credit for this operation, it was Le Maire who actually proved its principle; after hundreds of failures had been encountered he finally succeeded. Hunter wrote of the process and thought it might be successfully performed, but it took the eager, enthusiastic Frenchman to bring fruit to the theory. Out of this discovery has grown the great medical process of engrafting; upon the find of Le Maire is based the physiological principle of foreign cell association, or the assembling of cells from different persons. This is one of the greatest contributions to modern surgery, and the restoration of features, hands and extremities, through the application of the La Maire discovery, are too numerous to even mention. Le Maire should be remembered for the services he lent his country during a period which was anything but promising. It will be news to many that this same dentist, as early as 1822, published a work on general pathology, showing his advanced knowledge of this phase of medical study. He was a studious dental surgeon, and a prolific writer.

Next we come in touch with a distinguished character in American history, Charles Wilson Peale, of Philadelphia. His fame rests assured, as he was the first to paint the picture of Washington, when that young Virginian was colonel in the British army. He not only pictured Washington once, but had seven additional sittings of this beloved American. The famous Peale Washington has attracted the attention of the world and few people know how it came that the artist was able to restore the edentulous mouth and thus reproduce the face of Washington. Peale's son, however, informs us that his father, who was a dentist, carved a set of teeth for Washington, and during sittings he had the great commander wear this artificial substitute and by this means he was able to bring youth and better expression to the face of the man who had suffered the loss of his teeth. Peale restored character to the face and gave us a natural Washington. Of course, the teeth which Peale made had no direct professional value, since he only had Washington wear them during sittings, and this is the only reason why I mention teeth in this connection, as they served the purpose of the art side of Peale's career. Dentist Peale not only has given his generation eight original pictures of Washington and scores of copies, but he has made it possible for Americans of all times to behold the likenesses of Lafayette, Randolph, Thomson, Pitt, Francis Key and other distinguished citizens of our country. The unique picture of himself and large family I show to illustrate his talent and his home companions. Peale produced the first mezzotint made in America. It was he who discovered the mastodon in Virginia, and expended over $5,000.00 to deliver it in Philadelphia, where it became the beginning of the famous Peale Natural History Museum, which was the most gigantic undertaking of its kind in the States. It contained two hundred prepared specimens of animals, one thousand birds and four thousand butterflies. He, like Ottolengui, enjoyed the beautiful and varied forms of the butterfly. The museum also contained thousands of insects and many thousands of fishes and water life. This dentist also founded the Philadelphia Academy of Fine Arts, and he and his son, Rembrandt, furnished upward of one hundred original paintings. He was a student of nature and published many works pertaining to art and architecture, and his writings on the care of the teeth as well as his contributions to other scientific fields, illustrates his broad and liberal disposition. The invention of plaster of Paris, when mixed with timesand and marble dust, employed to restore incomplete statues, is to this day the formula of Charles Wilson Peale. It was this same talented and cultured dentist, who gave to the world the incorporation of platinum in porcelain work, and this contribution to present art work in porcelain shading as well as in dental progress has deserved

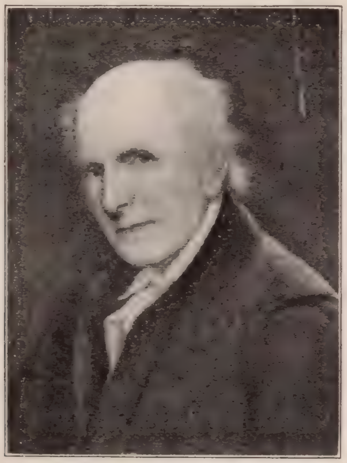
Jos. Le Maire.

greater consideration. It is a strange coincidence that this man should be so deeply interested in the life of Washington, and that his death should have occurred on the birthday of the great general. Peale died on February 22, 1827, and the dental profession has every reason to be proud of this distinguished and capable American.

Coming closer to modern times, we must not overlook our beloved genius, Dr. William G. A. Bonwill, who was a writer of considerable note. The poems which he published as well as the unpublished ones, deserve comment. It is claimed by his family that there are still scores of these products unpublished, and it would indeed be interesting to see these mental creations. The inventions which he gave to the world were many and all bordered on the principle of making life easier. While I am not inclined to give much value to the influence of spiritualism, one must regard the subject as not altogether unreasonable when we learn of the deep faith this dentist had in that subject. Like Atkinson, he was a firm believer in this mysterious power of the departed. It is not for me to say a word against this theme; I am still from the southwest corner of Missouri. I want to be "shown" and am liberal enough to accord the so-called occult influences some attention. Bonwill personally told me that he had indisputable proof of the communication of the departed. And he wrote these lines to a friend: "I believe in inspiration—I never invented a thing or discovered a thing that were not revealed to me by the angels which came to me usually while I was asleep." We hear much just now of rapid breathing anesthesia, but does it occur to you that Bonwill as early as 1875, thirty-five years ago, read a paper on this discovery, before the Franklin Institute of Philadelphia? Whenever you see a self-binder feeding its way through a wheat field, please do not forget that it was Bonwill who contributed to that great labor-saving device, and that the present machine might not have taken its present turn nor artistically bound the bundle but for Bonwill. Nor should you look upon one of the modern sky-scraping buildings with its massive skeleton of steel without remembering our dear and departed Bonwill, for it was his automatic and pneumatic mallet which became the basis of this great invention. The present riveting mallet which ties and binds these steel girders and metallic braces together is a direct copy of the Bonwill instrument, and at considerable difficulty have the patent attorneys made it possible for the modern building device to do its work. Dr. Bonwill contributed liberally to the world's advance and his unselfish consideration of others is manifested in countless improvements which have aided humanity in general. There are others of Philadelphia, who deserve consideration, Dr. Kirk, who has given considerable attention to literature, other than pertains to dentistry, and his scientific contributions to chemistry have attracted the attention of scholars everywhere. He was for some time the recognized leader of new thought in chemistry in the Towne Scientific School of the University of Pennsylvania. His researches in this field of study merited him the high esteem of profound thinkers in this exact science. To many it was a regret that Professor Kirk took up the study of dentistry, since they deem him of greatest possible service to humanity in the study and research of chemistry. The deductions along biological lines have equally demonstrated his capacity to fathom the intricate depths of the mysteries of nature. Time will not permit me to longer dwell on the eminent in Philadelphia, but allow me to direct your attention to Drs. Garretson and Guilford, both of whom have done praiseworthy work in fields other than dentistry. Some future time I may describe their contributions which have been most commendable.

We now turn our face to the city of Baltimore, which has always held for dentists a spell of historic fascination. What Philadelphia is to national patriotism, Baltimore is to the pride of the dental profession, the city of founding, and here we find that giants lived, many of whom grow larger as time goes by. They were constructionists, and not destructionists, and in the front rank of these eminent men we find Dr. Chapin A. Harris. If you will pardon the expression I will say that no man in the profession possessed prophetic powers so well as Harris. He foresaw better than anyone the great future for the profession. This same scholar and student contributed liberally to the knowledge of general literature, and he was a constant correspondent with the eminent authors of his time. He claimed among his personal friends the distinguished Rufus Choate, Edward Everett, Longfellow, Lowell, Henry Clay, and others equally famed. The letters from these great Americans are still in the possession of the family, and I am making an effort to get them, as they will likely contain many important items of interest to historians. Besides they will demonstrate his breadth of learning and the selection of his friends. He might also be regarded as lexicographer, since his dictionaries as well as encyclopedias are in general use. It is to be regretted that this great man bestowed so much upon humanity and that in the later days of his life he was practically penniless and further that his family suffered untold hardships because of his poverty.

The great partners of dental science were Harris and Hayden. Both were men who did much for the general public. He came of the sturdy revolutionary stock, but his people were indeed of the poorer class, but educational opportunities were found by young Hayden and he certainly improved the meager chances he obtained. The natural trend of his mind was toward geology, and he became a recognized authority on rock formations as well as the geological changes of mother earth. It was he who published the first geology in America printed in 1821. Later he discovered a new mineral, which since has been called Haydenite. His discoveries in botany merit mention as they show his deep study of all that pertains to the two great studies in nature. To him belongs the credit of convincing the medical profession of the necessity of oral hygiene and he was the first to lecture in a medical college. It would not be proper to leave Baltimore without saying that we had seen the genial, cultured and scholarly B. Holly Smith, who has done much in the way of post-prandial entertainment. The public in general has valued his humor, while his poetic products have been much admired because

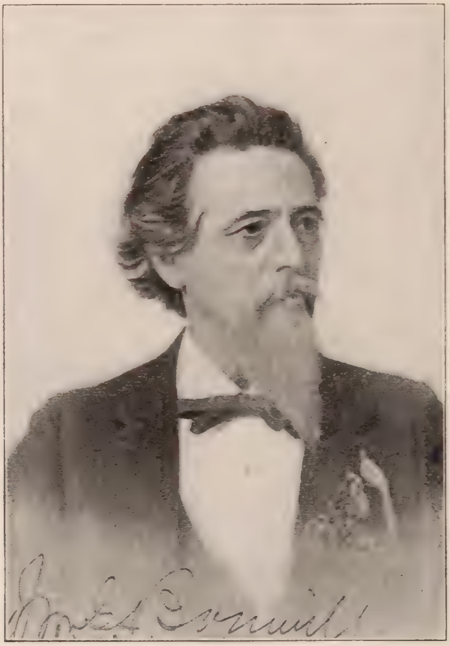


Charles Wilson Peale.

of the consideration of nature. There is nothing of the enforced in his style of oratory, nor in his poetry—all seems of the natural, hence its captivating influence. When one meets him one has met some of the salt and the wine of the earth. Speaking of wine leads me to take you to the vineyards of Dr. T. B. Welch, who with his son, Dr. Charles Welch, has given to the world the celebrated Welch grape juice. This delightful liquid has found its way to the homes of every civilized land. Dr. Welch was for many years the editor of *Items of Interest,* and every time you take a sip of the grape juice you are unconsciously drinking to the health of *Items of Interest.* Dr. T. B. Welch, of Wilmington, Delaware, was an influential character in literary circles and made a most strenuous effort to have the spelling of the English language simplified. This he advocated and repeatedly published in the journals, years before Theodore Roosevelt loomed upon the horizon. His work attracted wide attention, but possibly his poetry deserves to receive the greatest consideration since it was of the optimistic kind and held within its lines a sermon, a moral or bequeathed strength to the weary.

Our train next follows the rails toward our national capital, where we stop before the immense shaft or monument reared to George Washington. The tip of this is made of aluminum. When the designers had perfected the base the question as to how the tip would be made became a great problem. Foundries were invited to make the top or cope metal, but none was able to bring forth the metallic product. Then came on the scenes a dentist of the name of C. C. Carroll, a distant relative of the stern and wealthy signer of the Declaration of Independence, and he showed them how to make aluminum flow to the will and the wish of man. The huge casting of this metal was accomplished by Dr. Carroll and stands to the credit of one of our profession. While we are here in Washington let us not forget Dr. Eleazer Parmley, who was a prominent writer and educator and a man of the most distinguished acquaintances in this and other lands. He wrote a book devoted entirely to "Children and Their Pleasures." In 1861 he visited Napoleon III; Pope Pius IX, Robert Browning, John Tomes and had an audience with Queen Victoria. His close companions in America were Horace Greeley, Hiram Powers, Buchanan, Read and Healey, the artist. The romance of this dentist and the daughter of Pere Astor filled the pages of papers for weeks. Miss Mary Astor and he were lovers, but the Astor people wished her to marry into European nobility. The daughter was hastily taken to Paris, where she was to wed Baron Von Romph. She informed Parmley of the plans of coercion and asked that he meet her in Paris, and there wed. Her departure was immediate and did not afford time to marry before taking the steamer. Dr. Parmley took heed and boarded a boat and arrived a few days too late, the marriage to the baron having taken place. Parmley, however, was considerate enough to call and extend his congratulations. The baroness was practically a captive. She and her master left for Germany, where she, after a few weeks, died of despair and broken heart. Parmley resigned himself to the misfortune and devoted his time to literature. He was much admired by President Lincoln, who often invited him to the White House and arranged many distinguished entertainments in his honor. This same Dr. Parmley was the first to take a deep interest in prison reforms, and at his home the first meeting was held, looking to proper reform in the care of prisoners. This organization has grown until it now contains the most distinguished men of the land. President Hayes pronounced it one of the most humanitarian efforts in the scope of government supervision.

While we are here in Washington and speaking of our men who have contributed to the general weal, let us not overlook that eminent and beloved genius, Dr. Edward Maynard, who might be known as the great blacksmith of our profession. He understood the moulding and shaping of metals better than anyone who has yet come to our profession. He was also interested in the finer works of art and was a recognized artist with the pen, the brush and the chisel, and one of the foremost men of the Washington, D. C., Sketch Club. During the Civil War he distinguished himself by inventing a breech-loading rifle. This he made in his dental laboratory, and when he had it completed he arranged an interview with President Lincoln and so impressed the executive that he was urged to have a meeting with the head of the War Department. It soon developed that Dr. Maynard had invented a truly wonderful piece of firearms. With his breech-loading rifle, one soldier could do the work of ten, and by adopting this method of union defense the Union Army would immediately be multiplied by ten and assure victory for the Federal troops. It was indeed a fact for, upon placing the Maynard guns in the ranks the victories began to come to the stars and stripes and the Confederacy began to retreat and surrender. The final glory came to the north, and to Maynard of our profession is the credit of this change in the stream of tide. While in England some years ago I visited the training grounds and arsenal at Woolwich, the greatest in Europe, and through a relative was allowed to visit and see many of the military things of this great place. To my astonishment I was told that the breech-loading device employed by all the civilized nations was an American invention by a Dr. Maynard. Of course, I thought the man a physician, but my relative informed me that he was a dentist. I was indeed astonished and also chagrined to have an Englishman tell me that which I certainly should have known. Maynard has been honored by presidents, emperors, kings and queens for his great effort in military affairs. You see, he was honored because he invented machines to destroy life—hence he is remembered. If he had devoted the same effort to making machines to save life or to discover a method of preserving the teeth, little would have been said—few presidents or kings would have noticed him. This shows the work we as a profession have before us in educating the world that life-saving is also a phase of good government. Maynard



was a great man and deserves our highest respect. He had medals and tokens from all the powers of Europe. The original models of Maynard as well as his decorations can be seen at the Washington National Army and Navy Museum. Maynard was an M. D., but this degree was an honorary one, and he never practiced medicine. He was a dentist, though the medical profession claim him. He, like Dr. J. S. Marshall, an M. D., belongs to the dental fraternity, and their life work has been with our calling. Washington city and the nation as well owe a debt of gratitude to a dentist which has as yet not been paid to him. The world is slow to recognize worth, but it does owe Dr. Thomas W. Evans recognition of the highest kind. During the Civil War Dr. Evans was practicing in Paris. He was an American by both birth and training, but hoped to find his fortunes, which he certainly did, in the old world. The Civil War was at its crest point. The North was meeting with defeat and the South was having its failures. The North had its victories and the South claimed its triumphs, and in the midst of this uncertainty the Emperor Napoleon called at the office of Dr. Evans to have some dental services performed. The conversation drifted to the Civil War in America, and the emperor was free to discuss the matter with Evans, since they were on the most friendly and intimate terms. Napoleon surprised Evans by saying: "It looks like the Confederacy will win the rebellion, and I am debating with myself whether to recognize the South or not." Dr. Evans, in his known diplomatic manner, assured Napoleon that it did not seem so to him, that he was quite of the opposite view. "But," added Napoleon, "according to the news reports in our foreign papers everything points to a victory of the Confederacy—and I would like very well to know the truth about the situation, but to find one sufficiently reliable, there is the difficulty." Dr. Evans remarked that it might be possible the emperor was reading the wrong kind of papers and that his information was colored to please the European situation, when Napoleon remarked: "I wish I had some trustworthy messenger, I would send him to the United States and investigate." To this suggestion Dr. Evans replied: "I will go if you wish." Adding, "I will go to America and see Mr. Lincoln. I will visit Washington and learn the real truth of the situation. I know that the North must win. I believe that I can bring back to you evidence that will prove this. You know that I have never deceived you, and that you can trust my report." Then he added, "Please do not be in haste about recognizing the Confederacy,—delay that action until my return and you will never have cause for regret." The dentist had accomplished his purpose and a great emperor entrusted to the care of one of our profession, the delicate task of sounding the real underlying situation of two enormous war forces. Whatever this dentist might say in reporting would change the entire circumstances of the European attitude, hence the importance of this mission. Dr. Evans went as the special envoy of Napoleon, he went as a diplomat of a great nation and his findings would be important as to the outcome of the war. If France recognized the Confederacy, Spain would quickly follow suit, and Italy, too, would take a similar stand; then Germany and England, the latter eager, though hesitating, would also lend her approval. With such a European change, the friendship of Russia would mean little. The South would have the sympathy of European power, and soon could count on the financial aid of these great nations. All these events were in the hands of one of our profession. Dr. Evans came to America. He had a long and memorable interview with Abraham Lincoln, who saw how important it was to thoroughly convince the dentist of the real outlook, and Lincoln certainly made it clear that the war would end in a federal victory. Dr. Evans was shown every detail which would bring conviction of Northern supremacy and his mission was not in vain. He returned to France, gave a conclusive report that the South was failing, that its army was practically defeated and that Lincoln emphatically called attention to the recent victories and the ultimate success of the federal armies. Emperor Napoleon was won over to the North. A dentist had saved the day and a union of states was preserved, largely, and probably because of the diplomacy, the patriotism of one of our profession—a native of Pennsylvania. I am now unearthing the correspondence and the facts in this Evans' mission.

From Washington, we journey towards Pittsburg, and here we come in touch with the great industries of western Pennsylvania. Possibly the invention which has changed more fortunes and caused more financial comment than anything in recent years is the oil well shooting. This remarkable invention and discovery is the result of the labors of a dentist by the name of Dr. Roberts of Titusville, Pa. This has made oil production a simple process and we can take comfort in the thought that this important method has been the invention of one of our calling.

In Cincinnati, the charitable work of Dr. Jonathan Taft has been recognized. The literary world has copied from this genial, kind and liberal-minded soul many of its most important ideas pertaining to the proper indexing of literary works, either in book, journal, or magazine form. Dr. Taft's published index to medical and dental literature bears date of 1886, twenty-four years ago, and shows how well he comprehended what we needed. It was the beginning of a new awakening in general literature and libraries have copied from his system, all of which indicates his superior wisdom in this educational field.

In the city of St. Louis we also find several who merit our consideration, Dr. Henry James Byron McKellops being the first to claim our attention. This cultured southern gentleman has done much to place his name with this class of practitioners. He was the first to recognize that the dentist should be broadly informed, and with this in view he expended more than $25,000 on a library which contained volumes connected with our art and science. He was also a soldier in the cause of the confederacy and his house was the headquarters of enthusiastic secessionists. The union army captured him and placed him in prison, but his influence was so great because of his friendship among those of the North and South that he was taken out of prison and marched to the outskirts of St. Louis and told to depart and not

H. H. Hayden.

show himself again in the ranks of the enemy. This was an unusual military proceeding, but history seems to give it credit. He left, with a small party, for the far west. They anchored in a valley in Montana and it belongs to history that Dr. McKellops was sufficiently informed in medical practice to deliver the first white child born in the state of Montana. He later went to Europe where he acted in precise opposition to Dr. Evans, since McKellops earnestly labored to have Europe recognize the Confederacy. When the war was over he returned to St. Louis, where he associated with the most talented of the entire South. As a reciter and a linguist he certainly was distinguished.

It also affords me pleasure to direct attention to Dr. Burton Lee Thorpe, who has distinguished himself as the most able organizer in the profession. During the Centennial Exposition given in St. Louis, his efforts in organizing the several divisions of that world's fair were recognized by the authorities who issued him a commemorative diploma and struck off a gold medal. His writings along general historical lines, deal with southern life and his literary efforts are being highly appreciated.

Across the river, and somewhat south of St. Louis, we come to the home of Dr. J. J. R. Patrick, and his accomplishments along scientific lines are of a most noteworthy character. He has distinguished himself as an anthropologist, ethnologist, archeologist, geologist and comparative anatomist. While visiting the Smithsonian Institute at Washington, in the hope of getting definite historical knowledge of the old and early settlement of Cahokia, Ill., to supply historical pages to a recent publication, I was astonished to learn that the best plats or maps of the Cahokia mounds were made by Patrick. The curator at the institute informed me that not only were his maps the best, but many of his Indian relics were of the most systematic and important in the possession of the government. His deductions as to the Indian tribes, their language, their daily life and their classification, was of an order displaying a high appreciation of this science. The Patrick Historical Collection, now a part of the Missouri State Historical Society, has attracted world-wide attention.

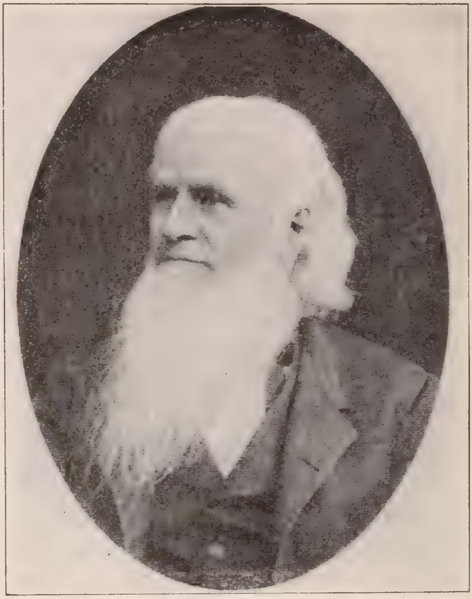
On our way back to Chicago let us stop long enough to say good day to Dr. Charles Land, of Detroit, who has astonished the world with his porcelain flowers, delicately formed and beautiful.

In the State of Indiana we may pause at South Bend, where is

Dr. Louis J. Smith, who is the inventor of the new local anesthetic, known as nontoxo, employed in surgical anesthesia of the spinal cord. In this same town lives Dr. Thomas Carson, the manager of the Central Baseball League, which illustrates that our profession is also interested in the game side of life. And, as we speed into Chicago, the baseball fever does not subside, since the leading pitcher of the west, Dr. White of the White Sox, is a dentist. In Chicago we find a few who are contributing to the progress of the general world. Dr. Eugene Talbot's researches along psychological lines is noteworthy. And his labors in the study of degeneracy and facial angle have also attracted the kindred professions. Dr. L. P. Haskell can be referred to as the most ethical, most beloved gentleman of our profession, and his work in Christian fields has endeared him to thousands. The kind and genial way he was received in Europe speaks well of his character and his artistic contributions to facial restoration other than dental have made him a pioneer in this class of work. While the silver-tongued politician, Dr. E. J. Perry, has gone west to show how to farm, we are the losers, since his inimitable manner of debate is now only a remembrance. Dr. Edmund Noyes has taught us that a dentist can master some phases of law, and the Northwestern University, in recognition of his knowledge of legal affairs, placed him at the head of the department of dental jurisprudence. Col. Edgar Swain was a brave soldier in the Civil War, and the government entrusted him with a multitude of military affairs, requiring not alone courage, but individual integrity. Then there is Dr. J. N. Crouse, possibly the best known of our profession, especially known as the fighter, but in reality the man who made the professional dignity of our calling possible, since he freed us from the commercialized problem which grew out of patent holding power. His natural legal mind arrested the huge schemes of making the professions of both medicine and dentistry subordinate to the will of a few process owners and for this protection to dentistry and surgery he has won the gratitude of all who know of his campaign against professional chicanery.

This lecture would certainly be incomplete if I failed to direct your attention to Dr. G. V. Black, who recently, in our city, received the greatest dental tribute ever given in this country. I wish I might have the time to detail to you his researches in realms other than dental. Incidentally let me remark that his studies of the causation of atmospheric disturbances—winds and cyclones are recognized scientific deductions. His contributions to the literary elements of various educational organizations are of a most praiseworthy character. The mere mention, by title, of his writings, other than those which deal with dentistry, would consume considerable time. You are all familiar with his career and his contributions to both the physical and the literary field, other than dental have been many and important.

Another practitioner who has devoted considerable time and money to improvements outside of dentistry, and one who is known as a leader in educational affairs is Dr. Truman W. Brophy. For years he has given attention to the correction of diseases, both congenital and acquired, which relate to the nasal cavity and can not by any latitude be classed as dental. He has reproduced the nose, restored the cheek and performed hundreds of famous operations which do not in the least belong to the province of dentistry. At this time he has nineteen cases of nasal and oral restorations at the Presbyterian hospital and his efforts and methods of procedure in these difficult cases have become the recognized methods in the best hospitals of the



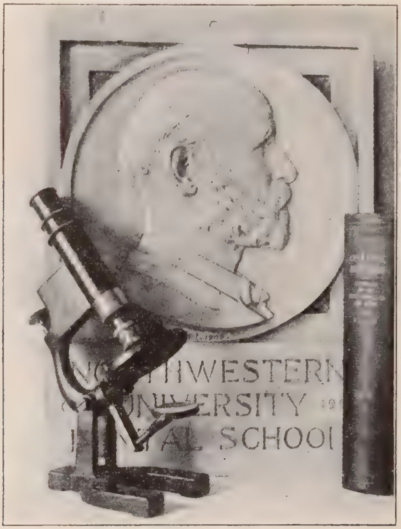
Dr. T. B. Welch.

world. His achievements in facial surgery place him in a class by himself. Besides he has been interested in a modern stock farm, where he has gathered, at considerable cost, some of the most famous cattle and horses of the continent. The latest process which is engaging his attention is the normal and proper sanitation of milk, which he hopes to deliver to the hospitals of Chicago, and by which means he will preserve the normal relationship of milk consistence, without employing any medicinal or destructive processes. In showing you this medallion of Dr. Brophy, another one of our profession enters my lecture. The designer or carver of this likeness of Dr. Brophy was Dr. R. B. Tuller, who has also distinguished himself by producing a splendid cast of Abraham Lincoln; and be it here remembered he also served Lincoln during the Civil War, where his songs and devotion to the cause were much appreciated. His humorous writings have made the readers laugh and forget the pressure of business or sorrow. His medallion of Dr. Charles E. Bentley, the founder of the largest dental organization in the world—the Odontographic,—will certainly please you all. Dr. Bentley has done original work of merit in comparative anatomy and he has been a pronounced advocate of dental and oral hygiene in the public schools, not alone from the dental or professional side but the humanitarian phase that the pupil will progress in the arts and sciences with greater assurance if the health of the teeth is cared for.

Then there is Dr. Calvin S. Case, who for years has devoted his energies in educating the masses and the profession in the proper restoration of facial angles—not dentistry, but in reality faciology. The building of a normal face is not dentistry. The method he applies, while it includes a deep knowledge of dentistry, rests more essentially on a deep-seated understanding of the osseous arrangement of the entire face and the philosophy of bone movement.

Another gentleman who deserves considerable comment for his work, and who has distinguished himself for his mechanical abilities, is Dr. W. H. Taggart. His new method of casting metal will, in the days to come, be employed more extensively in the other professions and trades than it now is in our own. Besides this he is the inventor of many other useful appliances which are of value to kindred callings. His invention for keeping a given heat by electricity is a great success and he has solved a difficult problem, the good of which will be of universal benefit.

This lecture was the outgrowth of the program committee inviting me to give you a lecture on my contributions to history and heraldry, or because of my presidency of the library board, to treat of the "Dentist in Civic Affairs," but I much preferred to treat of the other practitioners' contributions and only incidentally speak of my contributions on colonial Americana to the magazines and newspapers. My work entitled "History of American Emblems," is the recognized authority of the government, and in 1904 the state department at Washington requested me to design the new, great seal of the United States. The city of Chicago also asked for a new corporate seal which I furnished. The Cook county board awarded me the choice in the competitive test for the designs of seal and entablaments of the new court house; while the University of Chicago, as well as the municipal courts of Chicago, have my design for seal. I do not wish to give their heraldic symbolisms, but may furnish them in the footnotes and annotations when the lecture is published.* You of the city will recollect the criticisms offered against the city seal upon which I symbolized a pearl in the crest by indicating a nude babe in a shell. Some of the critics did not believe there was such a symbolism, but after



Dr. G. V. Black.

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*Space will not permit of inserting the footnotes and annotations.

investigation found I was correct and the bill for $500 services was allowed by the council with interest to date. I here show you several pictures and paintings, both ancient and modern, showing the pearl as being represented in the Chicago seal. My service to the public, covering ten years as director of the Chicago Public Library, is well known to you, and requires no reference tonight. As a staff writer for the Chicago *Tribune* and Chicago *Inter-Ocean* I have furnished these papers with more than two hundred pages of historical subjects in the past four years—a journalistic appreciation of my efforts, which are the result of the kind, encouraging words of my dental friends.

Another member of our profession who has liberally contributed to the general literary field by way of the magazine and newspaper is Dr. C. N. Johnson, whose writings have been valued, and his novel, "The Hermit of the Nonquon," published by Rand, McNally & Co. of Chicago, brought forth splendid newspaper reviews. He has also published a volume "Poems of the Farm and Other Poems." *

Seal of the City of Chicago.

It would have pleased me to have given a greater number of men a share in this lecture, but you will agree with me when I say that the dentists have made themselves felt in the ages in which they lived, and that they, as a class, were interested in something aside from the profession of dentistry. The picture of the membership of the Odontographic society contains many others to whom I would be delighted to refer, and I can content myself with the thought that in my second paper on this same theme, I will include others who have done a commendable service in the general improvement of society.

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*At this point in the lecture, Dr. Cigrand recited the poem entitled: "Old Soldiers' Sentiments."

This entire evening's lecture has fulfilled its mission if you will appreciate the fact that it is not enough for you to be a good, faithful and serviceable dentist, but that you are supposed to be interested in the great and human service about you; make yourself a part of the political scheme of your country; lend your efforts to worthy civic movements; place yourself in an attitude of a charitable citizen; go out and be a factor in art and science organizations and by this means satisfy yourself that you are in truth serving your country and profession as well. By this new and higher plane you will find recreation and will assist in raising the standard of your profession, since the world will feel that you are elbow to elbow in the ranks of the broad-minded and liberal-spirited men who form the army of progress in the work of this generation.

PAINTS AND ENAMELS.*

BY EDWARD A. ROYCE, D. D. S., CHICAGO.

Some years ago I read a paper before this society upon the necessity of recognizing the variety of shades that are to be found in every set of teeth, and urging that artificial dentures be made to imitate nature as nearly as possible in that respect. It was hoped some manufacturer would deem it advisable to place upon the market sets of teeth of the various shades, and thus help us to bring about a much needed reform in artificial work, and at last, one of the large houses has devised a method of manufacture that gives very good results so far as shades are concerned, and has placed them on sale, but if they are sent out to fill orders, I understand they are returned as mismatched, and for that reason not of use. This shows that the manufacturers are ready to provide what the dentist wants, and therefore the dentists and not the manufacturers are to blame for the teeth that are supplied at the present time.

While attending a clinic recently given by the Chicago-Odontographic Society I heard a dentist say that changing or varying the shades of porcelain teeth by the use of paints had given him greater satisfaction than any other one thing that had come to his hand in years, and believing he voiced the sentiment of many who have successfully used the paints it occurred to me that we could profitably spend a little time this evening in the discussion of materials, and methods of manipulation used in applying these materials, and thus induce others to adopt the painting and staining of teeth, crowns and facings to produce more harmonious effects in the mouths of the patients.

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*Read before the Odontological Society of Chicago, March, 1910.

Painting artificial teeth dates back some twenty-five or thirty years, as about that time Dr. Geo. Cunningham, an English dentist, brought some paints from Germany, and introduced them into England for the purpose of painting teeth, and presumably they had been used in Germany at an earlier date, but they were not extensively used in England at that time, because experience proved the colors were not permanent. Some years later Mr. Robt. Brewster, seeing the necessity of changing the appearance of porcelain teeth that would be more permanent than anything so far discovered, worked out his porcelain colors, and they proved to be a great step in advance of anything so far produced. His enamels are the first of the higher fusing, being made to fuse at the fusing point of gold. He has a fine line of colors, the shades being selected with rare good judgment to meet the needs of the dentist in this artistic work, and fine effects are being produced with them. The method of working these colors is entirely different from the paints, these being floated on with a stippling motion of the finest sable brush, instead of a sweeping motion, the varying shades being secured by making the mix of colors thin or heavy, as needed. They fuse without glaze at two thousand. This dull surface is preferred by some dentists as the moisture of the mouth gives the appearance of sufficient glaze, and it is certainly much better than the extreme glassiness given by some paints.

A couple of years later the S. S. White Company brought out their mineral stains which also should be classed as high fusing. Both of these sets of colors are what are termed enamels by porcelain people, in contra-distinction to the term paints. An enamel is largely made up of what is called a "body," which is practically infusible, mixed with enough flux to hold the particles together when fused, while paints are made largely of flux. This explains the difference in the working qualities of the two,—why the paints spread and fuse so smoothly while the enamels are difficult to apply and often fuse out grainy.

Early in 1909, in company with Dr. Roach, I visited one of the art supply stores in Chicago, and while there we were shown the Lenox china paints, and after some experimenting with these it was decided to exploit them at the State Society to be held at Danville in May. This was done and the enthusiastic manner in which the new paints were received told very plainly that the members of the Illinois Society were looking for some way by which the artificial teeth could be made to harmonize more perfectly with the surroundings than had been possible in the past. The beautiful specimens presented by Dr. Roach were admired by everyone, and the manner in which he changed the shades from light to darker proved beyond a doubt that he was an expert in that direction, and demonstrated what an artist could do. The inexperienced worker will find the Lenox paints easy of manipulation as they flow nicely and are put on with a sweeping motion of the brush. They fuse at twelve hundred but must be raised to eighteen hundred or two thousand to insure the paint becoming a part of the body of the tooth. The range of colors is great and if one is experienced in blending several colors to get the right shade they are very satisfactory, but most of us can do better with colors prepared especially for our use, or to which only a little black or yellow is to be added.

The essential qualities of coloring materials are first, durability; second, true firing; third, colors that stand soldering; fourth, natural appearance; fifth, ease of application. Let us first speak of durability. In order that a paint should be permanent upon a tooth it must, to a certain extent, enter into that tooth so that it will be a part of it, and not simply a covering for the surface. To accomplish this the heat must be high enough so that the color will fuse into the tooth and in order to remove that color the surface of the tooth must also be removed. Tests made show that paints fused at a temperature of twelve to fourteen hundred are not durable in the mouth and will not stand the action of vinegar, lemon juice and salt, while a higher fusing will endure these tests, so the melting point of gold may be regarded as the test for proper fuse on high fusing porcelain. However, let us bear in mind that any case may be spoiled unless notice be taken of the fusing point of the *tooth*, as that is just as important as the fusing point of the paint. Paints fused at two thousand lose their porcelain appearance, which is so much like the natural tooth and take on the appearance of colored glass, which is very noticeable and very objectionable.

Another thing to be regarded is true firing. The colors I speak of tonight change very little in fusing if it is done at the right temperature, so that little allowance need be made for the change. The wet tooth should represent as nearly as possible what the final color will be.

One place where the low fusing paints do not hold is when it is necessary to solder a case after the tooth or teeth have been painted. With high fusing the soldering and bath of even twenty-four hours in muriatic acid does not affect the color at all.

The object of painting or staining teeth is to improve the appearance of the mouth. Therefore, the natural appearance of the tooth is very important. Much depends upon the artistic skill displayed by the dentist in the application of the color, which must not be too bright nor the glaze too noticeable, though it should have the smooth appearance of high fusing porcelain, which is the best imitation of tooth enamel we have.

In regard to ease of application we must concede that the paints excel the enamels of the past, they spread over a tooth so smoothly with a sweep of the brush that anyone can easily grasp the detail of manipulation, while the application of enamels is so difficult as to almost preclude their use. However, the enamels are so much more durable I began a series of experiments to see if I could not overcome the difficulty of application. As underglaze colors the mineral stains work perfectly, also for imitation of tartar and imitation of wear on teeth, but for changing the shade or putting in spots they are unsatisfactory in their present form. What the dentist needs is a color that can be wiped on with a stroke of the brush and which can be applied so thinly that a mere tinge of darker color is given,—for we do not always want to make our shades decisive,—or if put on a little thicker a darker shade will be given and thus we can easily shade the different teeth to suit each case. The durable quality of enamel is all right but the appearance and application is all wrong, and that is what I have been able to change in a very simple way. It is unnecessary to detail all the experiments I made, the different mediums I tried, the different methods of application and the different temperatures of fusing, before I found that by reducing the color to an impalpable powder I could make it fuse smoothly, but not until I adopted the suggestion of Dr. Louis Bake and used glycerin as a medium with which to mix the stains did I succeed in getting satisfactory results. The use of glycerine as a medium is a very important thing. The powdered enamel is not dissolved by the oil (as paint is) but is held in suspension and the glycerin has the right consistency to carry it and it adheres to the tooth sufficiently so that the powder is evenly distributed over the surface of the tooth. The mineral stains, as I use them now, have all the good qualities we have been talking about. They are easily applied with a sweep of the brush either heavy or light, as may be desired. They fuse at two thousand with a porcelain finish and the stain enters into the tooth itself so that it stands all the tests for durability, acid bath, soldering and other acids, though, of course, anything like pumice which wears away the surface of the tooth will take it off. But these stains, as now made, are not deep enough, and grinding has reduced the color still more, so that it will be necessary to intensify them in the manufacture before they will be practical for the profession at large. This is particularly true of the yellow, which we use a good deal and black should be added to the list because a touch of black is nearly always used.

The growing interest in this subject has encouraged me in my work and if I have been able to help the cause along ever so slightly I shall feel amply repaid.

GOLD INLAYS AS ABUTMENTS FOR BRIDGES.*

BY PROF. WM. SACHS, D. D. S., BERLIN.

For the construction of bridges we do not always face such favorable conditions as they are represented by healthy roots or partially destroyed teeth. On the contrary, we have often to overcome great difficulties inasmuch as perfectly sound teeth must be used as abutments. In such cases the grinding of a molar or bicuspid, intended to be covered with a shell-crown, is up to the present, the generally adopted method. Furthermore, with teeth situated near the front, like the cuspids for instance, it has been the rule, either to use window-crowns or simply to cut off those solid teeth altogether and to use a pivot-tooth fastened to the root to serve as a second post.

I am generally opposed to window-crowns, particularly in the upper jaw. In the large number of such crowns, whether made by myself or other dentists, I have found only very few which after three or four years were not surrounded by caries, and we can safely declare, that, saying nothing of the annoyance of showing the gold ring, those crowns will nearly always cause the loss of the tooth; exceptions do not change this fact.

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*Read before The American Dental Society of Europe, March, 1910.

The sacrifice of a perfectly solid tooth-crown should never be resorted to except where there is actually no other way to succeed. Only occasionally will such practice meet the consent of the patient and I can well understand a refusal on his part to sacrifice another good tooth after the loss of several others and that just in view to replace them.

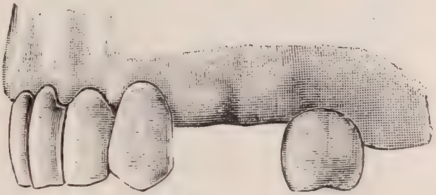


Fig. 1.

To cap molars or bicuspids necessitates the grinding of the lingual, buccal and proximal walls until they are all parallel to each other; furthermore, we must make them cone-shaped and finally the occlusal surface has to be ground down in order to allow of sufficient thickness for the gold. To fulfill all these conditions, which alone will allow the construction of the right kind of crown, I am absolutely for the devitalization of the pulp and this for two reasons:

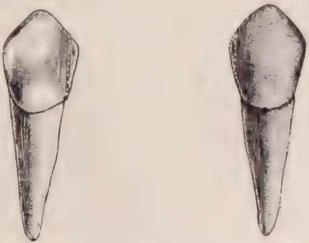


Fig. 2.

Lingual. Labial.

To be able to give to a tooth with a live pulp the right shape, we must have a patient little sensitive to pain, which is the exception and then suppose even that with the help of adrenalin and cocain injection, we can do our work with little pain, yet we always risk the future death of the pulp by exposing the dentin. What that means for the patient and ourselves, to see a solidly cemented bridge compromised by pulpitis, periostitis, and final abscess, does not need any further discussion; we all have met with those undesirable mishaps in our practice. Except in those very rare favorable cases where position, form and occlusion do not require extensive grinding, I have not the slightest hesitation to devitalize the pulp. With our present methods of treating those pulpless roots we have it in our control to conserve those teeth almost indefinitely; failures in these cases are so rare that they need not be considered.

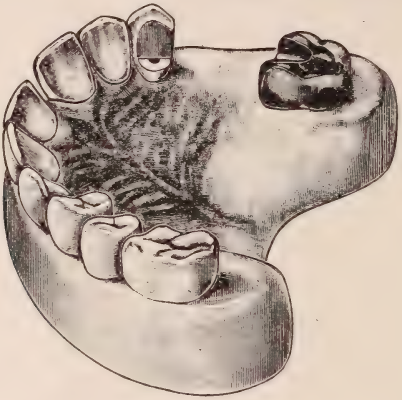


Fig. 3.

All these different annoyances have induced the profession to propose continually new methods to avoid the use of window-crowns, the entire capping or the sacrifice of healthy teeth.

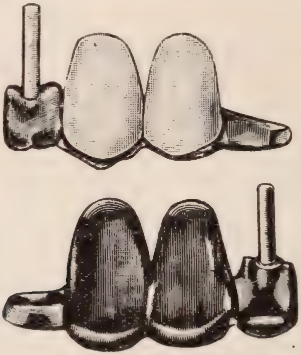


Fig. 4.

The casting-method will enable us to solve these problems in many instances; gold inlays can be used as abutments in certain cases. It has been tried to anchor bridges with two, three or more teeth, with inlays on each end. But experience has proved that those bridges, with inlays, simply cemented in the cavities without a pivot reaching in to the devitalized pulp-chamber, are not successful. The force of mastication will soon loosen those inlays in their cavities as every tooth possesses a more or less pronounced movability, in its alveole, which does not accompany the movements of mastication, but rather counteracts them.

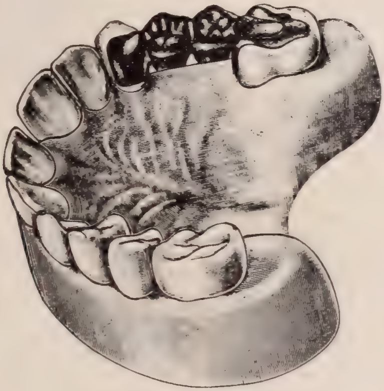
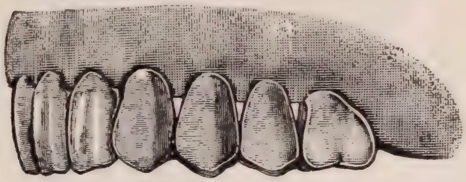


Fig. 5.

As a second objection to two inlays-abutments, must be mentioned the difficulty of fixing both inlays correctly in their respective cavities even if they were well fitted before being soldered to the bridge. Bridges put in under such faulty conditions are bound to facilitate caries near the gingival margin.



.. Fig. 6.

For all these reasons I have used the following method of constructing bridges, which, I am convinced, will answer largely all our expectations. A few examples illustrated by these drawings will help me to explain to you the whole system.

First case—(Fig. 1.) Both left bicuspids missing in the upper jaw; cuspid and first molar entirely sound. After devitalization of the cuspid and closing of the foramen, the root-canal was enlarged up to about six millimeters deep, to receive a platino-iridium pivot of 1,5 mm. thickness. Then the protuberance of the distal surface was ground off to a line, perfectly straight from neck to the cutting-edge. (Fig. 2.) On the lingual surface a deep step-cavity was cut in such a way as to form with the root-canal a right angle. A gold-inlay was cast to the pivot and fitted so carefully that all ground-off tooth substance was replaced perfectly by the gold. In the molar a cavity was cut on the mesio-occlusal surface without destroying the pulp, and an inlay made to replace the sacrificed corner. (Fig. 3.)

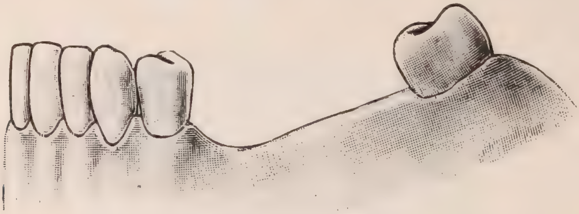


Fig. 7.

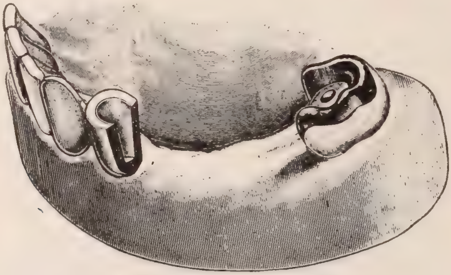


Fig. 8.

Into this inlay, while yet in wax, we must arrange on the occlusal part a groove about 3 mm. deep and 2 mm. wide which is meant to receive the gold spur, which terminates the bridge on the other end. Now we take a plaster-impression with the pivot-inlay and the groove-inlay in their exact position and let the patient close the teeth into the plaster in order to get a perfect articulation together with the impression. This impression will give us a model which shows the two abutments and the articulation in their exact position as in the mouth.

The two bicuspids are made best by the casting process with changeable porcelain-facings. Care must be taken that the gold-crown of the first bicuspid will be soldered to the cuspid-inlay as near as possible to the cutting edge, in order to enable the patient to keep the bridge at this place in perfect cleanliness. The finished bridge presents itself now as follows; two bicuspids are mesially connected with the inlay fitting into the cuspid while distally terminated by a gold spur fitting right into the groove of the inlay fastened in the molar. The bridge is put in place by cementing it into the cuspid while the spur simply rests in the gold excavation of the molar. This kind of bridge is only suitable to replace one or two teeth. More extensive bridges with three or more teeth need permanent fastening on both ends. The lever-movement, especially on the lower jaw through the muscles of the tongue would otherwise loosen bridges simply fastened mesially. Figs. 4, 5, and 6 show the different aspects of the completed case.

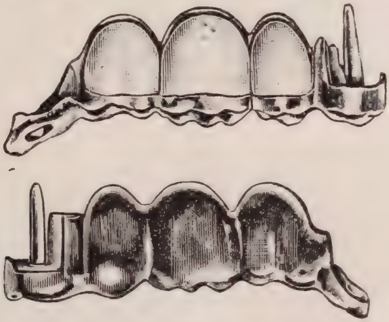
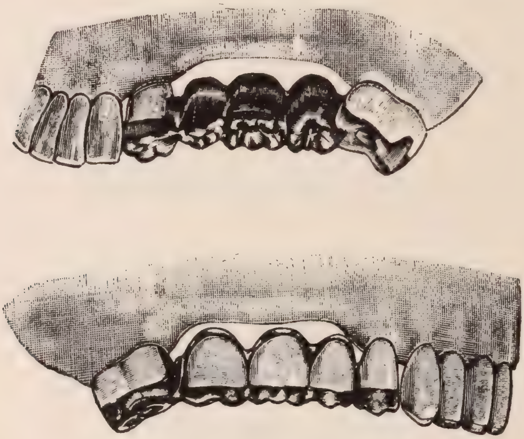


Fig. 9.

Second case—As you see from the illustrations (Figs. 7, 8, 9, 10, and 11) we have to replace in the lower jaw the second bicuspid and both molars. First bicuspid and third molar perfectly sound; the third molar through the premature loss of the neighbors considerably leaning forwards. This divergence of the two teeth would have made the placing of a bridge (constructed with two caps over both teeth) next to impossible. To avoid the total cutting off of both crowns I proceeded in the following way: After devitalization of the two teeth the occlusal surface of the bicuspid was ground down horizontally by about 2 mm. thickness; the distal surface made straight and excavated so as to form a sharp box-like step reaching down to the neck of the tooth. A platino-iridium wire 1,5 mm. in thickness was fitted into the enlarged canal and connected with wax replacing all sacrificed tooth-substance. This inlay once cast, was tried in the tooth, articulated and well polished. Care was taken to leave on the proximal surface of the inlay sufficient thickness to make a perfect contact with the future teeth to be soldered to it. This is a very important point, to have this delicate spot constructed so that the patient will be able to clean it readily and thus prevent future decay right here at the neck of the tooth.

The third molar was excavated deeply on the mesial surface, and the pulp-chamber enlarged; the masticating surface ground off 2 mm. in width and a gold-inlay made to fit the tooth and replace all sacrificed substance. While yet in wax a big excavation reaching over the entire surface of the inlay was made. This finished inlay, once fitted in position, was pierced at the bottom to allow a gold tube containing a pin-screw to pass through. (You can find such tubes with pins already made at Ash's.) This gold tube was waxed to the inlay in such a way as to reach as far as possible into the pulp chamber, the two parts soldered together and the inlay with the tube tried on again. Now take a plaster impression with the two inlays in place allowing to fix the articulation. All you have to do then is to construct your artificial teeth, solder them mesially to your bicuspid inlay and this bridge distally with a broad gold spur fitting into the concave inlay. Such a bridge once cemented mesially into the bicuspid, finally screwed into



Figs. 10 and 11.

the molar, will present a permanently fixed body which can never get dislodged.

Gold inlays as bridge-abutments will be of frequent use in this specialty; they will certainly hold a bridge as well as gold caps and last, but not least, are not as conspicuous in their appearance as entire crowns are. I could describe to you a number of other cases where I made use of inlays in the construction of bridges, but I am sure that practitioners of your skill and experience will soon find out by themselves many instances where this system will lead the way to success.

PROPHYLACTIC TREATMENT OF FISSURES AND PITS OF THE ENAMEL.*

BY S. O. SOLBRIG, PARIS.

Modern dentistry has attained such a high degree of perfection that the majority of our interventions are crowned with success. With scientifically constructed fillings, we arrest with certainty the ravages of caries; with crowns and bridges, we restore organs which were formerly considered as lost, and even edentulous jaws resume their physiological functions by the insertion of prosthetic pieces. The cases

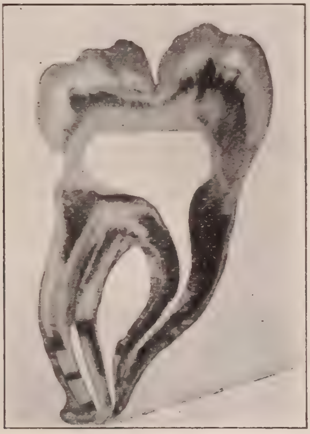


Fig. 1.
Section Showing Central Fissure.

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*Read before the American Dental Society of Europe, March, 1910.

are becoming more and more rare when we are obliged to shrug our shoulders and confess to the patients that we are unable to allay their suffering with the therapeutics at our command.

If the affection is once established, we are almost sure of success in our treatment of it. In this respect we are much in advance of most of the other branches of medicine which are often still in doubt as to the very nature of the affections, and in many cases have to content themselves with treatment of the symptoms. Being unable in every case to cure, medicine has been obliged to look for means to prevent the disease, and here again prophylaxis plays an important part, as disease. This explains the present popularity of hygiene, and the important social movement which has declared itself in favor of the propagation of hygienic rules. To show how great a part sero-therapeutics plays in current life, it is sufficient to mention a single instance, that of vaccination against smallpox, which has become a present day necessity, and the regulation of which is in the hands of the public powers of nearly all the different European governments.

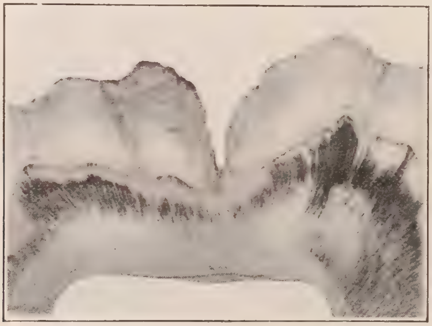

Fig. 2.
Central Fissure in Upper Molar as in Fig. 1.

Since the impossibility to cure appears to go side by side with preventive measures, it is not surprising to see dentistry take but little interest in prophylaxis seeing that it felt itself competent to cure the disease. Nevertheless we must not think for an instant that nothing has been done in this direction by the members of the dental profession. We find in history mention of researches in prophylaxis many years ago, and although they were only few and far between, they must not for that reason be considered any the less important.

The systematic extraction of the four first permanent molars was recommended many years ago (Bourdet) in order to prevent a crowded condition of the teeth and thereby facilitate an easy and to some extent automatic cleansing of the remaining teeth. The good results of this procedure as a preventive measure against caries does not, however, compensate for the consequent faulty articulation and the want of mutual support of the teeth by the premature extraction of these organs, and this practice was therefore discarded.

With the same end in view Dr. Arthur advised the mechanical separation of all the teeth by cutting a V-shaped space between them, but on account of the absolute destruction of all contact points, the importance of which we all recognize, it was discontinued.

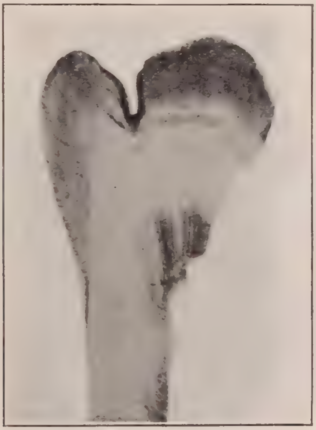

Fig. 3.
Fissure in Lower Bicuspid.

Prophylaxis even plays a part in our everyday preparation of cavities, for what other principles are at the base of the well-known axiom "Extension for Prevention" if not those of prophylaxis.

Orthodontia has not only esthetic aims in view, but by correcting the anomalies of the teeth and by re-establishing a normal occlusion, thus permitting of either a natural or perfect artificial cleansing, it is certainly a great help in prophylaxis.

The treatment of pyorrhea is not only the curing of the established lesion, but also the continual guarding against the progress of it is by systematic cleansing that affected organs are often preserved.

In addition to these somewhat general methods we have just mentioned, a certain number of practitioners have made a special study of prophylaxis of dental caries. Some have recommended mechanical treatment; others chemical treatment.

Wright of Cincinnati, Smith of Philadelphia, and their followers are particularly in favor of mechanical cleansing by means of wooden points and powdered pumice stone, which is intended to destroy the gelatinous plaques and to polish the surfaces of the teeth in such a way that, according to their reports, it will be impossible for caries to attack the teeth.

On the other hand Bryan (of Basel) and Miller have made numerous experiments with nitrate of silver for the same purpose.

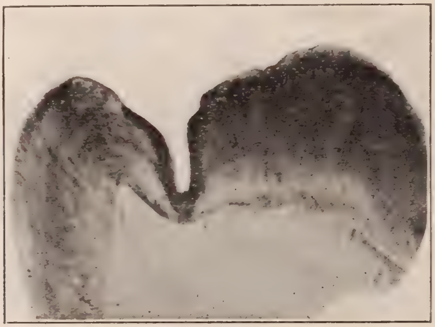

Fig. 4.
Fissure in Lower Bicuspid as in Fig. 3.

These experiments show that, while nitrate of silver retards the progress of decay in dentin, it has no effect whatsoever upon the decalcification of the enamel. Dr. Amoedo was their zealous follower and also advocated this method in France.

The constant and judicious employment of dentifrices, powders, mouth washes, soaps, pastes, the use of special tooth brushes, tooth picks and floss silk have certainly done a great deal towards arresting caries.

But whatever have been the results of the current hygienic measures taken, or of the different preventive treatments recommended, they have had no action whatsoever on the fissures and pits which are so often present in the enamel of molars and bicuspids. Let us study these fissures and pits more closely, and to illustrate the existing confounding them with lesions brought about by exterior influences. It will be easily understood that it is impossible to clean these deep and narrow fissures and pits with a brush and powder, and in the same way the temporary effect that any antiseptic might have upon them would be insufficient to destroy the fermentation that takes place in these natural culture tubes. The formation of lactic acid is inevitable, and pits and fissures sooner or later become transformed into cavities anatomical conditions, we have chosen unerupted teeth from the skulls of very young children, as will be seen from the photographs. We have taken this precaution in order to exclude any possibility of error in the interpretation of these normal anatomical conditions by

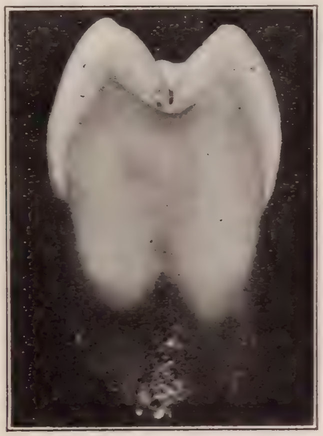

Fig. 5.
Section of Upper Bicuspid.

of decay. In fact, if we examine the teeth that present themselves in our everyday practice, we shall find that seventy-five per cent of fissures have been transformed into cavities that either need filling or have already been filled, and at the age of twenty years there are very few patients with the fissures of all their teeth intact.

We have, therefore, thought it advisable to find some easy and practical method to prevent the transformation into cavities of these normal fissures and pits, and in our opinion the wisest precaution to take is to fill them with some plastic material as soon as the teeth erupt. There are many advantages in this treatment; it can be so easily applied, without the slightest suffering, and without any harm to the hard tissues. It can be very quickly done and at relatively small expense to the patient. It is particularly indicated for the first permanent molars, the conservation of which is of the greatest importance, for children of that age are more or less indifferent to the rules of hygiene and the idea of suffering frightens them. I have now employed this treatment in my practice for four years, and the results have been so gratifying that I am encouraged to extend it to bicuspids and even to third molars; in no case has caries appeared even after a period of four years. Every care must be taken, however, not to treat teeth in this way if they are already affected with decay, as is so often the case with the third molars, the fissures in which have frequently commenced decaying before the teeth are fully erupted, owing to the peculiar anatomical conditions of the surroundings, where the food is so likely to remain under a fold of the overlapping gum.

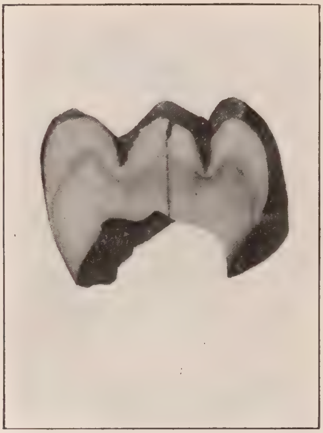

Fig. 6.

Mesio-Distal Section Cut Diagonally Through the Crown of the Upper First Molar, Which Was Treated by Nitrate of Silver.

The treatment can be divided into three different stages; in the first place all food debris should be carefully removed from the fissures by the aid of a very fine probe in conjunction with Dr. Head's bifluorid of ammonium. Then the fissure should be dried thoroughly with alcohol and hot air, after which a hydraulic cement is chosen and introduced in a very liquid state by means of a very fine instrument, great care being taken to ensure an absolute filling of the fissure. I give the preference to oxyphosphate of copper, the antiseptic qualities of which more than counterbalance its objectionable color.

I have reason to believe that other cements give similar results, as mechanical wear can have very little effect upon these narrow places.

Thus we are of opinion with the propagators of general prophylaxis that caries can be prevented in a great number of cases, and everyone here, I am sure, is convinced of the truth of the adage that an ounce of prevention is worth a pound of cure. Up to now, however, no rational treatment has been advocated for fissures, and their transformation into caries was inevitable whatever preventive method had been employed. I am far from making the extravagant statement that all fissures will decay, but you must admit that we find decay in at least seventy-five per cent of them, and such a high percentage will warrant my plea for prophylactic treatment. With this method I feel certain that a missing feature has been added to the prophylactic treatment, and if I have succeeded in awakening the interest of my listeners in this direction, I shall consider that my efforts have not been in vain.

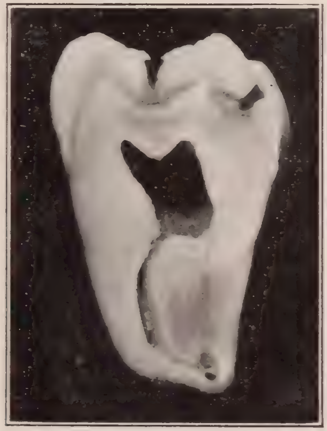

Fig. 7.

Section Showing Fissure Filled With Oxyphosphate of Copper.

THE FILLING OF ROOT CANALS.*

BY M. L. HANAFORD, D. D. S., ROCKFORD, ILL.

With the medical aspect of this subject, this essay will have little to do, our attention being confined, for the present, to the purely mechanical operation of preparation and filling of the canals; a thing at once so easy and so difficult, that it has been the despair of dentists since the time of Pierre Fouchard.

The fact that so many of the operations of modern dental practice depend for their permanent success upon mechanical perfection in root fillings—fillings which will exclude bacteria, and the existence of at least a reasonable doubt as to their universal excellence, would seem to furnish sufficient justification for the present effort.

About ten years ago the writer presented before the Northern Illinois Dental Society a paper on this same subject.

Pictures of experimental fillings were shown on the screen, thus presenting to the eye the results of these experiments for study and comparison.

The present effort was carried out along the same line, and mainly for the purpose of ascertaining whether there had been any change in materials or methods of operating, and noting any improvement in results during that time.

The Method: Extracted teeth with their roots imbedded in plaster, were sent to a large number of dentists, with the request that they prepare and fill the roots by their usual method and return them. They were then filed down to expose the fillings, photographed and slides made. As you look at the photographs, I will ask you to notice particularly one thing—that the small canals are filled better than the large ones, and perhaps some one may be able to tell us, in the discussion, why this is so.

You may be interested to see first a few slides of the series made ten years ago, that you may compare them with those made for this paper.

Slide 1. No. 43. Material, chloropercha introduced on broaches of different sizes. Section shows division of canal in upper third, forming island, and numerous foramina, at least four. Filling perfect at apex, porous in larger portion of canal.

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*Read before the Illinois State Dental Society, May, 1910.

No. 16. Sandarach varnish, followed by gutta percha cones, softened with warm air; filling extends slightly through the end, and is perfect throughout apical third; air spaces in larger portion.

No. 24. Flooded with eucalyptol, gutta percha cones inserted and packed with warm instruments. Apical third not reached; remaining third shows porous mass.

Slide 2. I will not take the time to describe further in detail the methods used in these older experiments. Those given with the previous slide may be taken to represent fairly the methods, unless otherwise mentioned.

No. 66. Has no filling in apical third.

No. 48. Filling shows great imperfection, as if from shrinkage.

Slide 3. No. 17. Distal root of lower molar; filling perfect; protrudes.

No. 68. Numerous air-spaces.

No. 59. Very imperfect.

Slide 4. No. 70. Lower bicuspid; extreme end filled with some metallic substance, not mentioned by the operator. Mass of gutta percha shows numerous air-spaces.

No. 7. Filling reaches apex, but porous.

No. 45. White gutta percha. Filling complete and homogeneous.

No. 32. Apical third good; remainder porous.

No. 60. Apical fifth not filled.

No.19. Mesial root, lower molar; one canal filled perfectly, the other not at all.

Slide 5. No. 46. Very imperfect.

No. 23. Chloropercha, gutta percha cones and silver wire. Operator thinks wire may have passed through foramen. Lacks three-sixteenths of an inch.

No. 5. Filling reaches apex, but porous.

No. 57. Filling does not reach apex.

No. 12. Filled with tin. Does not reach apex.

No. 42. Mass of gutta percha, porous; one foramen not reached.

Slide 6, No. 80. Porous.

No. 8. Filling solid to apex.

No. 77. Filling does not reach apex.

No. 78. Filling reaches apex, but not solid.

No. 28. Very imperfect.

No. 29. Filling reaches every part, but porous.

Slide 7. No. 79. Speaks for itself.

No. 34. Apical portion good.

No. 35. Very small canals—filling good.

No. 14. Apex reached, but not tight.

No. 71. Speaks for itself.

Slide 8. Of these six fillings, No. 47 alone may be called good.

Slide 9. Shows nothing for our encouragement.

Slide 10. No. 11. Apical fifth of one canal not filled.

No. 13. Chloro-eucalypto-percha, with hydronaphthol? Method followed for fifteen years—does not recall a single failure. What would be your prognosis in *this* case?

No. 41. A perfect filling.

No. 52. Sandarach varnish and guttapercha cones. Reaches apex, but porous.

We will now take up the present series, noting changes in materials and technique.

Slide 11, No. 1. Three fine crooked canals. Flooded with chloroform, then guttapercha points, pumped to place. Too little contrast in color to show in photograph, but each canal is well filled to the end.

No. 2. Chloropercha and cones. Filling in root bisected, shows root well filled at apex. The other root shows a protrusion of filling material, also a perforation repaired with No. 30 gold foil, pushed to place with guttapercha. Note the extent of perforation not covered.

No. 3. Tooth heated to body temperature, floded with eucapercha compound, filled with guttapercha cone, using warmed plugger.

Eucapercha Compound, prepared by heating base plate guttapercha in eucalyptol compound, which is:

Menthol grains, 2.
Thymol grains, 3.
Eucalyptol dram, 1 M.

Root very much curved, canal small, material white. Difficult to show. Filling seems to be good at apex, but as canal grows larger crownwards, considerable porosity is seen.

No. 4. Chloropercha and cones. Root shown does not seem to have been cleansed or filled. Note a foramen near the apex, passing through side of root at right angles. Lingual root of this tooth (not shown), contains a very porous filling.

No. 5. Extremely small canals are enlarged with drills made from mandolin wire, flattened and twisted; operated by hand. Canals flooded with cajeput and filled with twisted cones. One canal shows a piece of drill closing the apical foramen perfectly; the guttapercha is porous throughout larger parts, but closes the apex well.

No. 6. Canal moistened with eucalyptol, followed by chloropercha and cones, softened with warm air and packed. Filling does not reach apex by three-sixteenths of an inch.

No. 7. Oleopercha, followed with g. p. cones. Lingual root and every possible space in badly twisted buccal roots thoroughly filled.

Slide 12, No. 8. Cleansed with Dioxide, washed with water, then alcohol, dried and swabbed with Buckley's 1, 2, 3. Alcohol again, follow by Pruyn's sandarach solution, chloropercha and cones. In linguo mesial canal—the one on the right of the picture, a few fibers of cotton followed by g. p. cones. Guttapercha is very porous throughout and in one part does not reach apex by an eighth of an inch.

No. 9. Chloropercha and points. Filling reaches apex, but very porous.

No. 10. Oleo percha and aristol, followed by g. p. points. Very porous.

No. 11. Canal moistened with oil of cajeput, then chloropercha and small g. p. points, one after another, until no more could be got in. Then a warmed tapering plugger pushed down as far as practicable and another cone forced into the space so made. Filling is perfect throughout.

No. 12. Last vestige of pulp removed by application of peroxide of sodium and water, dried with alcohol; then chloropercha, followed by several cones in each canal. Filing reaches apex, but very porous.

No. 13. Chloropercha with menthol and g. p. points. Filling very imperfect.

No. 14. Eucalyptol, chloropercha and g. p. points. Filling very porous. Piece of broach in one root.

Slide 13. No. 15. Eucalyptol, eucapercha and g. p. cones, covered with oxychloride of zinc. Filling reaches apex, but quite porous.

No. 16. Canals prepared with Donaldson broaches—in larger ones using "Gates' Glidden," dry, warm with hot air or hot instrument, or both; then g. p. points dipped in oil eucalyptus and pressed to place. Result—each canal filled about half way.

No. 16½. By the same operator. Fillings reach apex, but very porous and not adherent to walls.

No. 17. Chloropercha on fine Swiss broach, followed by rubber cone. Filling reaches apex, but much "room to let."

No. 18. Eucalyptol compound (Lilly) g. p. cones, covered with oxychloride of zinc. Filling very imperfect. Note a foramen passing at right angles through side of root on the left of picture.

No. 19. Lubricated with preparation of chloropercha, to which thymol crystals have been added and then chloroform evaporated, warmed with hot air and followed with g. p. cones. Filling reaches apex of each root, but very porous.

No. 20. No data. Note that the filling in the canal, which is large and comparatively straight, is quite porous, but a fine crack at the right is perfectly filled; thus supporting the statement that the fine canals are better filled than the large ones.

Slide 14. No. 21. Oil of eucalyptus, a thick preparation of chloropercha and g. p. cones. Root is filled a little over half way.

No. 22. Canals opened with H_2 SO_4, antidoted with sodium bicarbonate. Filling material, Balsam Peru, with trikresol in it, into which pulverized guttapercha has been worked. Pulverized guttapercha prepared by dissolving guttapercha in chloroform, then eucalyptol and thymol added, then evaporated, and dried and pulverized. For use take a drop of liquid as above, and enough powdered guttapercha to make a paste; work it into the canal and follow with g. p. cones. Said to be germ proof. Result in this case, canal is large and straight and though filled to the apex, is quite porous.

No. 23. After opening canals, pump in a mixture made of powdered alum, with creosote and formaldehyde, then chloropercha and g. p. points. Filling reaches apex in canal on right, porous in larger part of canal. Canal on left contains broken broach and traces of filling material. A third canal, not shown, is well filled in apical fourth, and very porous in larger portion.

No. 24. Canals enlarged by inserting small, sharp broach, followed by barbed broach, with which the canal is enlarged by filing until root plugger will pass to within three-sixteenths of an inch of apex. Chloropercha followed by short, fine pieces of g. p. cones until larger portion of canal is reached. Result: Each of two canals shown is filled to apex, but fillings are exceedingly porous.

No. 25. Chloropercha and g. p. cones. Fillings very porous and non-adherent.

No. 26. Buckley's Menthol-Eucalyptol-Thymol dressing, chloropercha and g. p. cones. Fillings very imperfect.

No. 27. Enlarged with $H_2 SO_4$, neutralized with sodium bicarbonate. Filling material "Oxypara." Filling very porous.

Slide 15. No. 28. Filling material—a paste composed of zinc oxide, tannic acid and creosote, followed by g. p. cones, and covered with cement. Fillings are good, except minute portion at apex of canal at left of picture.

No. 29. Paste of trikresol, formalin, camphor and oxide of zinc, followed with g. p. points. Fillings porous, g. p. point protrudes in case of one root.

No. 30. Insert g. p. point, flood with chloroform and force to place. Filling very imperfect.

No. 31. Chloropercha pumped in with unvulcanized rubber—followed by g. p. cones. Filling seems perfect to apex.

No. 32. Moistened with cajeput and pumped full of eucalyptol-thymol-guttapercha. Short g. p. cones made of temporary stopping are then packed in with cold instruments. Filling is porous as honeycomb.

No. 33. "Formapercha" and g. p. points. Canals straight and good size. Fillings very imperfect.

No. 34. Canals moistened with eucalyptol, then eucapercha comp. (Buckley), forced in with vulcanite rubber, then g. p. points. Fillings very imperfect.

Slide 16, No. 35. Moistened canals with cajeput, then chloropercha and g. p. points. One canal fairly well filled, the other about half way, and contains broken broach.

No. 36. Oil of cajeput, then cajepercha, then g. p. points. Filling reaches apex, but very porous.

No. 37. "Pustolene," followed by g. p. points. Fillings extremely porous.

No. 38. Canals enlarged with "sulpho-phenol" (Ma Whinney), oil cajeput, cajepercha and stiff g. p. cones. Results: Filling reaches apex, but porous.

No. 39. Chloropercha and g. p. points, covered with medicated cement and that with amalgam. Filling does not quite reach apex, and some air-spaces throughout.

No. 40. Enlarge canals with broach, lubricate and fill with g. p points direct. Fillings very porous and non-adherent.

No. 41. No data. Filling excellent, as to apical third, elsewhere somewhat porous.

Slide 17, No. 42. Oil of eucalyptus, followed by g. p. cone. Filling reaches about half way to apex.

No. 43. Cajepercha, followed by g. p. cones, warmed as packed. Filling very imperfect.

No. 44. Chloropercha and g. p. cones. Filling in one root fairly good; in the other, does not reach apex.

No. 45. Oil cajeput, chloropercha and g. p. cones. Filling seems to reach apex, but very porous.

No. 46. Chloropercha with iodoform, followed with g. p. cones. Filling reaches a little over half way to apex.

No. 47. A few fibers of cotton with solution of sandarach, followed by g. p. cones. Filling reaches apex, but very porous.

Slide 18, No. 48. Celluloid points used to pump chloropercha into canals, and sealed with temporary stopping. The smaller mesial canal is well filled, while the larger, or distal canal is very imperfectly filled—again emphasizing the statement that the small canals are most likely to be well done.

No. 49. No data. This filling is extremely porous throughout.

No. 50. Filled in the "good old way," and very well done. The imperfection in the canal on the right was caused by dragging of file.

No. 51. Eucalyptus for three days, then chloropercha, and g. p. points. Filling in root on the left of picture reaches apex, somewhat porous; in the other, foramen is not reached.

No. 52. Lower incisor with decided curve at apical third and two canals. Canals enlarged as much as possible, then moistened with eucalyptol, a sparing amount of chloropercha, followed by small pieces of g. p. cones. Foramen is not closed, and considerable vacant territory throughout.

This is an old dry tooth, and shows on the reverse side some exceedingly fine checks, which are perfectly filled, showing the power of capillary attraction.

The present series comprises fifty-two fillings. In looking them over critically, the observer must be very lenient in his judgment to find an even dozen that can be called good.

Do we do better when working in the mouth with all the added difficulties of poor access, poor light, nervous patients, etc.? I cannot think so. I think you must agree with me that our only course is to "throw ourselves on the mercy of the court" and beg Mother Nature to be kind. We cannot plead youth and inexperience, that we did not know the consequences of our acts, or even that we have done the best we could. Our guilt is obvious.

Gentlemen, what are you going to do about it? I have shown you that no improvement has been made in ten years, and only a few changes in materials. Tooth for tooth the fillings made ten years ago, average better than the later ones, but in them all the message is written so plainly that he who runs may read, that it is not a question of this or that material or method, but that the whole secret is contained in two words, *thorough technique.* Good root fillings can be made. Why not make a few?

IMPACTED LOWER THIRD MOLARS.*

BY A. BROM ALLAN, D. D. S., CHICAGO.

The object of this paper is to give a more clear and concise idea of the difficulties with which one comes in contact in the removal of impacted lower third molars, according to the angle in which they lie toward the lower second molar, the contact with the same, and the depth of the tooth in the mandible.

Many operators do not understand the seriousness of this operation and the great damage that can be done in an attempt to remove such teeth without any preparation on the part of the operator by removing the bone by drilling around the tooth, thereby releasing it in every possible manner before an attempt is made to extract it.

Even after great precaution has been taken, you will find that on account of the density of the bone at the angle of the mandible and the broadening out at the external oblique line to the lower second molar, the removal of the tooth is very hard, even after the removal of the bone by drillings, so that you can pass a probe almost to the apex of the third molar to be extracted.

It is a great question, in my mind, why there are not more fractured jaws than there are, when an operator will use a Physick's forceps or an elevator on impacted lower third molars and force the tooth directly against the angle of the mandible and into the socket, instead of lifting away and out of it. Yet there are men here now, no doubt, who have tried this method and learned by experience that such a procedure is not to be repeated with success or safety, without a possibility of a fracture or a lifted second molar, unless Providence be with such cases. However, I feel the best thing one can do is to exclude the Physick's forceps from your practice, as the leverage that comes from the use of it is far greater than the operator realizes, and is bound sometime to get him into trouble. My reason for this is, that the distal cusps of the second molar are pronounced and when the fulcrum is brought to bear on them, you may destroy them. The elevator, as an instrument, is in the same class, although the fulcrum is at the gingival line of the tooth and not so liable to destroy the tooth used as a leverage. Great care should be taken as to the force applied, even with this instrument.

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*Read before the Illinois State Dental Society, May, 1910.

Impacted third molars, are as a rule, sent to the oral surgeon or the extraction specialist, and the dentist in so doing does not fully realize the operative technique necessary to remove them. Then when the fee question comes up, the dentist not being informed on the difficulty of removal, sides with his patient, instead of explaining that all teeth and conditions are not the same. Such cases as impacted third molars are serious surgical operations, and not simple extractions. Let the same case of impaction be operated upon by a physician, and his fee would make the dentists's look small. In addition to that would be a hospital and nurse's bill.

A man who removes a great many impacted third molars, asked me why I did not send my cases to a hospital, as I then could charge a good fee, whereas if it were done at the office, the patient could not help feeling that it was not worth as much. Yet when I give them the benefit of such a reduction, by not placing them in a hospital, why should they not pay for such an operation with a good fee? Only because it is dentistry, which the dentist himself has helped to cheapen by not standing up and demanding what his work is worth and by allowing the patient to dictate what he should require for his services and how to do his work.

The leading specialist in New York City does not attempt impacted third molars for less than $50 to $100, knowing the difficulty of their removal. Yet the dentist is willing to throw the responsibility on to some other operator and allow him to take the risk and consequences, but seems unwilling that he should charge an adequate fee. That is a great mistake, as every good fee in dentistry helps all dentists to get more and at the same time uplifts the profession.

Before operating I have always made it a point to suggest an approximating fee to avoid a misunderstanding later, and also explain that as soon as the tissue is disturbed that far back in the mouth, even with the best care and treatment, there will be swelling of the glands and the jaws will open but little, because of the inflammation. Daily treatment of the socket must not be neglected for at least two weeks. How often the jaws are set and glands swollen from unerupted third molars, continuing for weeks, the patient never consulting a dentist, yet after the removal of an impacted third molar and just the same conditions arise, too many times the patient is willing to blame the operator for the same inflamed condition. I received a letter from a dentist in Indiana, in which he stated for eight weeks or more, a patient had been unable to open the jaws. I advised him, if it were possible, to get a skiagraph and see if there were not an unerupted third molar. So you must expect this inflammation after an operation of an impacted third molar, although it varies as to conditions.

Patients understand much better after the removal, why there is an expense attached to such cases, and also the inflamed and sore mouth, which they have on account of the disturbed tissue. Therefore they realize it is not a simple matter to remove one. I have mentioned at other times that it is far more difficult to remove an impacted lower third molar than to remove tonsils and adenoids, or any number of operations on soft tissues, for which the physician receives a good fee, far in advance of that asked by the dental profession. So let us all try to improve some of these conditions and not let the other fellow walk off with the laurels.

METHODS—

When the patient comes to me for my services, I immediately have a skiagraph made of the case, as this is most important and too many times neglected I cannot bring too great stress on this procedure, as now it is within reach of most all of us. Dr. Lewis and others of our city do nothing else but skiagraphic work. It takes but twenty-four hours to get a print, and a bromide can be obtained at once. When you have this skiagraph to look at, you are not guessing as to the position, length, or root formation, but are able to proceed with more intelligence and accuracy. Although there are some positions of the teeth where only a distorted skiagraph can be taken, yet it enables you to have a better idea of how to proceed with the operation. By all means resort to the skiagraph to help you in your work. Don't forget this warning. Do it from now on.

The method used in the removal of impacted third molars, thanks to Dr. C. Edmund Kells, Jr., of New Orleans, is to place the patient under nitrous oxide gas, then with a No. 8 or No. 9 bur, following the free margin of the gum, release the tissue around the tooth by drilling the process buccally and distally, until you have a groove around the tooth in the mandible. Then on the recovery of the patient you have the gum tissue released from the bone, and can insert the bur under the margin of the gum tissue and continue to drill with far less inconvenience to the patient while conscious than a tooth cavity preparation. However, the bur should be inserted under the free margin of the gum before the dental engine is started, as the blades of the bur will pick up the tissue and cause pain. If the blades of the bur fill, the shank of the bur heats up and, coming in contact with the tissue, causes pain, as well as when you touch the tissue which has not been severed from the bone at any point surrounding the tooth. Great care should be taken to prevent these conditions from existing. During the drilling, while the patient is conscious, I insert the probe often to see the depth the bur has cut, and when satisfied that the tooth has been well released around it and well toward the apex, I proceed to give the patient nitrous oxid gas; the second time, I use a lower alveolar forceps to remove the tooth, as I then can get a lateral motion as well as the lifting of the tooth up and backward from the socket, taking it out in the way of the least resistance.

When I was with the late Dr. Slonaker, his method was to take a bistoury or scissors and cut the tissue away back of the tooth up the angle of the mandible, then pare the tissue away. This would mean more laceration and the patient would have a much harder time of it, from the inflammation caused by so doing, than when the bur is used. Unless the tooth is deeply imbedded, there should be very little laceration of the tissue, and consequently the socket will heal up more quickly and the patient be more comfortable and not require so many treatments, which means a saving in the fees to them.

I find that by using the Beck method of bismuth paste in the socket, I keep it clean and aseptic and at the same time the tissue will fill in from the bottom of the socket more quickly than if it were packed with gauze, as there is not so much pressure brought on the tissue. If the opening be large I use the paste with paraffin in it and place a small piece of cotton over it to keep it in place and prevent it being washed out. It is absolutely necessary to treat the socket once every twenty-four hours until it has filled in enough so there is no place for food or saliva to lodge. I wash the socket thoroughly with an antiseptic solution and then fill it with the paste. I continue this treatment until the patient is able to cleanse it by rinsing with a mouth wash. Then I feel no further treatments are necessary.

THE BUSINESS SIDE OF DENTISTRY, AND THE GENERAL PROFESSIONAL OUTLOOK.

BY WILLIAM H. TRUEMAN, D. D. S., PHILADELPHIA, PA.

Much has been said of late concerning the business side of the dental profession; much that is good and much that is bad, while betwixt and between is a fair-sized sandwich of mere rot. It may sound very nice to the writers who descant upon the rapid advance of the dental profession, upon its high educational attainments, its great and increasing usefulness to the community, to indulge in fulsome self eulogy, etc., but it will, I am impressed, prove very embarassing if the said writers should be called upon to prove the statements made. That dentistry has, of late years, made a very great advance is undoubtedly true, but has it made any greater advances than have the other collateral arts and sciences? In its general usefulness to the community, has it, indeed, kept pace with the progress of the age? Has it, educationally, kept pace with medicine? The medical profession proves its educational advance by its literature, and by making its literature accessible to its members. Where are the dental libraries that attest the fondness of members of the dental profession for educational facilities? The medical profession attests its public spirit by founding and maintaining hospitals for the better medical and surgical treatment of the sick and maimed, and in a thousand and one ways freely extends its services to the poor and needy, and attests its interest in educational matters by well supporting its educational institutions. Has the dental profession done this to any marked extent? I am aware that quite recently there has been an awakening, and many who heretofore have looked upon the suffering poor needing dental services with but little sympathy have developed an energetic interest in providing free clinics for their benefit, and at the same time have developed a marked friendly feeling towards the newspaper reporter, freely furnishing him with glowing accounts of their accomplished and projected enterprises, to be published in the local newspapers, and also I am aware that many of these enterprises have sadly lacked support after their advertising usefulness had been exhausted. Preventative medicine has made a marked advance, and is being pushed by the medical profession so successfully, that as the editor of a prominent medical journal recently wrote, "It looks as though in the near future that the physician would be needed only on man's advent and exit." From a business standpoint this does not promise much, financially, to the medical profession, nevertheless, it is universally approved and is being energetically pushed. Preventative dentistry, also, is now on the stage, but not on the same plane. It is being pushed as a business producer. It is expected to fill our pockets, enable us to make provision for old age, to furnish the needful to add to our luxuries, and to "elevate" the profession (whatever that may mean). It is presented and pushed purely and simply as a business proposition.

The medical fraternity have been frequent visitors to legislative halls, urging measures that have for their object, without a "string," less need for their services by the community. They ask for pure water, sane sewerage disposal, clean streets, pure food, pure drugs, the abatement of disease breeding nuisances, and the enforcment of health precautions which experience has proved effective in conserving the health of the community, and enforce these demands by a convincing array of well considered arguments.

We dentists are also frequent visitors to legislative halls. We want our profession "elevated." We want the little fellow whose low prices (beg pardon, I mean "fees") threaten to prove competitive, shut up. We want the keen competition raging in our profession made less keen by keeping out all we can. As one of our friends once said, "There are more dentists in practice than can make an honest living," and we want as few more as possible. We want the advertising man hampered, as much as the law permits, a little more if it can be managed. We have compiled nice little tables to show just how many really good dentists the community can support as we think they ought to be supported. (A suggestion borrowed from the liquor license bureau.) The dignity of the profession requires some little style, and style costs. We want the educational standard raised, and all the new comers made to toe an ever advancing mark. (We, old timers, the "ins," of course support this as we are protected by the Constitutional provision against "*post factor*" regulations.) Now, no one pretends that this high educational standard is really needed; if they did, then the "ins" would be made to take periodic examinations, and to keep up a regular course of study. It is purely a business side provision. We want the code of ethics made stronger, we want to be declared by legal *fiat*, professional gentlemen untrammeled by all laws and elements of barter and trade. In other words, wouldn't it be nice if the United States Congress would make a national law permitting and authorizing members of the dental profession in good standing (that is, commanding good fees) to wear a distinctive wig, as was the case in the old times? It would enable those of us who fail to obtain distinction by a proper use of hands and brain to attract notice by something outside our cranium. And furthermore, well, if there is anything more to be got, we want it.

A dentist who entered politics and reached a high position once remarked in a dental meeting that "when a dentist he was in favor of a high educational standard, but since entering politics he had been brought to entertain far broader views. He saw that at least four-fifths of the population were farmers or mechanics, and without these no nation could long survive. They were the life of the nation, and he had noted that the highly educated man was not inclined to close relationship with the lowly workers; they sought the large cities where wealth abounded. The large bulk of the population depended for dental services upon those who were unable to meet the high requirements, and if this was cut out they would be compelled to accept an inferior service or go without." More recently this same question was brought before the British parliament by the efforts of our English conferees to obtain a more effective dental law, and so forcefully was the case presented by the illegal practitioners that the committee appointed to take testimony reported that the high educational requirements of the regular dental curriculum had so reduced and restricted the output of the dental schools that it was inexpedient to make any change, as by so doing a large and worthy element of the community would be deprived of necessary dental services, and they thought an inferior service better than none. And later, April 16, 1910, the highest court of the empire so emasculated the dental act that the practice of dentistry in Great Britain is, practically, without legal restriction. This is a business side of the profession it will be well to take note of. Already in the United States there are indications that an upheaval is imminent on the same grounds. The trend today is to make dental services more and more restricted to the wealthy. A poor lad from the working ranks is debarred from its study. A dentist whose practice is among the working classes, and who accepts fees they are comfortably able to pay is unwelcome in dental societies. He is made to feel "out of place" among men who talk glibly of their ten to twenty dollars an hour, and speak slightingly of those who work for lower fees as a disgrace to the profession. Any aggressive movement of the profession will meet with a crushing defeat, for be it known, the legislative mind is moved by voters, and there are far more voters interested in cheaper dental services than are concerned in the so-called elevation of the dental profession. As it was in the contest in England, the men who talk so strongly in dental meetings, and who write so forcefully and yet so foolishly in dental journals will cut a poor figure when cross examined by a witty attorney before a legislative committee who they feel are adverse to their cause. No one can read the testimony dragged from our English confreres, without feeling keenly how pitiable was their position as they were made, one after another, to acknowledge the weakness of their claim. As one remarked, "It was a miserable twenty minutes. Doing the best I knew how, I felt all the time that I was giving my profession away, and was unwittingly a traitor." Look up the English journals and read of this event; it gives an insight to a phase of the business side of the profession that is destined to soon force itself upon your attention.

Drop the tradesman idea; let the educational palaver have a rest; it is idle talk. Put your trumpets in cold storage; put on your far-seeing specks and, as business men, take a calm, thoughtful look into the future. How hollow is this palaver about our learned profession, a profession that takes no interest in its own literature, supports no libraries, slanders instead of endowing its professional schools, and sees no other way to ingratiate itself with the community than by cringingly sneaking under the wing of a sister profession, seeking thereby to cheaply obtain a part of that which our medical friends have honestly earned. The schools to teach professional ethics are the dental societies. See to it that their teaching is pure, honest, real and not mere theory. Let science take the place of politics, earnest study the place of self-laudation. Look well to the business side by providing for all classes of the community the best dental services available, and be sufficiently well informed in business affairs to know that no one can succeed who despises the source of his income. We want brainy men, men who have a worthy motive in life, who will make the most of their opportunities, and we want men who enter the calling with their ambitions undulled by a long routine line of study. It was such men who made the profession what it is, and it is to such men we must look for its uprising and rehabilitation upon a solid and firm basis. This is the business side of dentistry, and the general outlook of the profession that will soon claim your attention. It is coming, and not far off.

PROCEEDINGS OF SOCIETIES.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting of the Chicago-Odontographic Society was held at the Chicago Public Library Building on Tuesday evening, April 19, 1910, at 7:25 p. m.

The President of the Society, Dr. W. H. G. Logan, occupied the chair.

A paper entitled "What Dentists Have Contributed to Other Professions" was presented by Dr. B. J. Cigrand.

DISCUSSION.

DR. C. R. E. KOCH:

Mr. President: I exceedingly regret that I have not the skill and ability of the essayist, and the same facility for continuing the discussion of this subject, which has been so ably and well presented by him this evening.

I could not help recalling a remark that was made by the Hon. Zach Chandler, Senator from Michigan, and a great upholder of the Republican party about the time that the question whether Hayes or Tilden would be our next President occupied the minds of the American people. If I remember correctly Mr. Chandler was the Chairman of the Republican National Committee, and he sent out this order: "Claim everything; concede nothing." The force of the remark lies in the application of it here. I think the essayist has certainly claimed everything for dentistry.

The Emperor of France, to whom he refers as the Great Napoleon, but who may better be designated as the Little Napoleon, wrote a life of Julius Ceasar about the time our war was drawing to a close. In that history he put in his preface this sentence: "Historic truth is no less sacred than religion." So far as the historic truth that has been presented to us is concerned, I think the dental profession ought to consider that it is no less sacred than religion, and revere and preserve it. I thought, however, as I followed the admirable composition of our essayist that he has an element in his nature for which I had never given him credit, and that is poetry. He is a finished poet. Whenever he encounters anything where knowledge of facts is lacking, he resorts to his imagination and fills the gap. That is poetry in its purest form.

In the first place, the essayist, when he refers to the heroic character of Paul Revere is unquestionably right, but Paul Revere was not a dentist in the sense that we speak of dentists now. The advertisements of Paul Revere which are extant, very modestly set forth that people who need repairs on their artificial plates can have the same done by Paul Revere, as he learned how to do this from Baker. Baker was in Boston a short time, and later in Philadelphia and in New York. Recently, I think within a year, there has been discovered a large estate in the center of New York City, which was at one time Baker's property. Paul Revere is also cited as being the first witness to establish a case of post mortem identity, namely, that of the body of Joseph Warren, killed at Bunker Hill. If the essayist has any evidence upon that fact I should be glad to know it. I have imagined something of the kind myself, but it is only imagination with me. The fact is that Joseph Warren's body was identified by the position of some artificial teeth in his mouth that may have been carved in ivory, and that those teeth identified his body. The question remains whether Paul Revere or Baker or the Elder Greenwood or some other party made those teeth, or whether either of them identified the teeth. The fact that that is the first recorded case of the identification of a human body by means of an artificial plate, I think, has been recorded.

We come next to Horace Hayden. He was the great genius of modern days to which dentistry owes pretty nearly everything, and there is one point about Horace Hayden to which I wish to call special attention. He, like others, greatly admired what Hunter did in England in the early part of the 18th century. Hunter's great work was in comparative anatomy, but he scored Hunter most unmercifully for saying that dentists should confine themselves to the operation of extracting teeth or correcting defects in teeth, and that whenever the disease had progressed beyond that point, then it is their business to call in a physician or surgeon to fight it. Hayden scores him by saying, if he had had the courage to investigate he would have found on the other side of the British Channel dentists who did not teach or practice any such doctrine.

Of Eleazar Parmly and of Solyman Brown, the poet-dentist, both fathers in dentistry, a great deal more might be said. Solyman Brown published a dental poem called "Dentalogia," which I believe today remains one of the finest arguments in advocacy of the value of dental art and science that has ever been written. It is now over seventy years old, and ranks as a classic.

Amos Westcott, to whom the essayist referred as the Mayor of Syracuse, and the father of the man who wrote "David Harum," was also the founder of a private dental school. One of our late fellow citizens at one time one of our most distinguished dentists of this city, Dr. W. W. Allport, was a student in that school, and obtained his diploma there.

Now we come to John Greenwood. Greenwood is said to have been the fife major of the Revolutionary Army. Of course, we must forgive the essayist for using this title, because such a rank never existed and probably never will. As a matter of fact, John Greenwood was apprenticed to his uncle, a carpenter, in Portland, Maine. He played the flute, and "when the shot was fired that was heard around the world," the noise reached Portland and the boy was ambitious to see some of the fun that was to be had, so one Sunday, it being the easiest day to get out without discovery, he sneaked out the back yard with a little bundle on his back and a little change in his pocket, and his flute. As he walked along toward Boston everywhere he encountered enthusiastic people, and it did not cost him anything for meals and lodging, so he himself related, his tunes on the flute paid for all. He reached Cambridge, where Artemus Ward was in command of the Continental Army. This was before George Washington was made commander. He was not permitted to cross over to Boston. He enlisted in one of the Massachusetts regiments, in a company of which he became the fifer. He tells us how at the Battle of Bunker Hill he was frightened until he saw a colored man coming back with his face and neck badly bleeding. He asked the colored man if it hurt him, and he said no, and that just as quick as he could get it dressed he was going back to the front. This statement made him take courage, and he joined the line.

His mother came to get him out of the army. At that time George Washington had taken command of the army, and she appealed to George Washington for the release of her boy. This was declined, and I have always connected that little incident with the fact that John Greenwood afterward became Washington's dentist. That incident brought George Washington's attention to Greenwood. Afterward Greenwood participated in the campaign on Montreal, and on returning from that he joined in the New Jersey campaign, including the Battle of Trenton. After that he was mustered out, his time having expired. Later he re-enlisted in the Privateer service and sailed the main until the war was over, when he settled in New York as a mathematical instrument maker. He was called upon to extract teeth for a physician, and he did it so nicely that he was advised to take up dentistry as a profession, which he finally did. His father, Isaac Greenwood, of Boston, among several other vocations, also carved ivory blocks into teeth and was a dentist. John Greenwood probably was the first American born dentist, but Josiah Flagg has always received credit for it.

The essayist only refers to Josiah Flagg as a soldier in the War of 1812. As a matter of fact, Josiah Flagg was a soldier in the Revolutionary Army, very young, and he was a sailor in the War of 1812, as such he was captured and taken as a prisoner of war to London. There he was paroled, and while under parole received the attentions of Sir Astley Cooper, and greatly increased his knowledge by attending clinics. When he returned to Boston his health gave out and he moved to Charleston, South Carolina, where he died in 1816. He is believed to have been the first American born dentist who prepared himself to practice dentistry as a life's work.

Reference has been made to Dr. Kingsley's bust of Christ. A singular incident has been called to my attention recently, and I can verify it, because I got it out of Kingsley's own mouth years ago. Kingsley was not entirely satisfied with the model of the bust of Christ you saw here, and one time while engaged in this work he called upon Dr. Atkinson to spend the evening with him. A number of you will probably remember Dr. Atkinson, a man who soared in a higher atmosphere than most mortals. Dr. Atkinson looked at that bust and he said: "That bust is not Christ." "Well," he said, "how do you know it is not?" "Well, I saw him." "You saw Christ?" "I certainly did." "Where did you see Him?" "Out in the orchard. I was on my knees praying and I looked up in the tree and I saw Christ." "If you saw Christ, what did He look like?" "Well, He looked very much like S. S. White." You may laugh at that, but, gentlemen, I have always felt the same way. I remember when S. S. White came here and assisted Elisha Gray with his telephone. I remember how he told me that he was out in Highland Park and heard a lady play the piano at Evanston. It seemed then almost incredible I looked at him with a great deal of astonishment, but, of course, Mr. White had said it, and there was no question about its truth.

Dr. McKellops was the prince of men. He was the greatest friend of those who were friendly to him, and the opposite to those who were not. He was intensely human. In his early days he had some military training. When trouble arose in Missouri he espoused the cause of the southern Confederacy, and he had to leave Missouri and he went to Montana. After he had been in Montana a little while he left Montana and went to England. For at least a year in England he was a secret agent of the Southern Confederacy. He was not the only dentist who was intrusted with a mission by the Southern Confederacy.

I see Dr. Brophy before me. I want to ask him if he recalls Dr. Winder. Dr. Winder was a general in the Confederate Army. To him was assigned the duty of taking care of the interchange of prisoners. He was one of the commissioners who tried to arrange peace in 1864. He had the absolute confidence of the men that controlled the Confederacy, although his home was in Maryland, a border state.

There was something said tonight about Dr. Evans preventing the recognition by France of the Southern Confederacy. I am not prepared to deny or admit it. I am not prepared to take from Dr.

Evans any of the glories that belong to him. I know without Dr. Evans' friendship the Empress would never have succeeded in escaping from Paris, but when it comes to the recognition of the Confederacy, there were great diplomatic questions at that time. Russia sent a fleet here fully equipped to take care of us in case France did recognize the Southern Confederacy. She did not dare recognize the Confederacy because the other countries would not permit her. She sent Marshal Bazaine over with a French army and an Austrian contingent, and supported Maximillian, an Austrian prince, on the throne of Mexico, in order that their armies might be ready on our border the instant there was the first sign of necessity to assist the cause of the South.

Just as soon as a great man said, "Let us have peace," however, Bazaine withdrew his French army. The Austrians were left to themselves, and you know the fate of poor Maximillian.

Dr. Swain commanded a brigade of the Army of Cumberland. It was his brigade that scaled the heights in front of Bragg's headquarters at Mission Ridge. He later was with his command serving along the Rio Grande under Sheridan, who was in special charge there, to enforce the Monroe doctrine, and remained there until Mexico again belonged to the Mexicans. After this he came to Chicago and resumed his dental practice.

I will now come to still more modern days, Dr. Homer Judd, once the leader of dental progress among us, wrote the best description of the Battle of Franklin that has ever been produced. Then we find Dr. E. K. Blair, of Waverly, a member of the Legislature, and Dr. Calhoun, Speaker of the Illinois House of Representatives for two terms.

I am a little surprised that the essayist permitted the fact to escape him, that Dr. Brophy, aside from practicing surgery and conducting a dental school and having a stock farm, has been laboring for a number of years to produce a cow that will give pasteurized milk. (Laughter.) Success to him.

Dr. Edmund Noyes:

Mr. President: There ought to be but a very limited time for me, and I am sure there is but little of moment that I can say. To my mind the transcendant contribution which any dentist has made to any other of the professions is in the discovery of anesthesia, which was perhaps sufficiently referred to in the lecture.

I think also that Dr. Miller's work in the mouth has been valuable in directing the attention of the medical fraternity to the liability and opportunity for general infections through that channel, and has been an aid in bringing about greater care in the observation of mouth conditions as relating to the general practice of medicine.

I have not had the opportunity of spending any time on the paper, so that I am speaking with absolutely no preparation. The question of identification by means of the teeth was mentioned in connection with General Warren, and that was said to be the first recorded instance. It occurs to me that there is a prior instance on record. Rehfuss in his jurisprudence, referring to Sargent's history of Braddock's expedition, says that Sir Peter Halket, in 1758, went to the place of Braddock's defeat two years previously, in hope of finding the remains of his father, who was there killed. He found an Indian who had "seen an officer fall beneath such a remarkable tree as he should have no difficulty in recognizing, and at the same moment another, rushing to his side, was instantly shot down, and fell across his comrade's body." They found the tree, and two skeletons beneath it. "At the moment Sir Peter remembered him of a peculiar artificial tooth which his father bore." The skull of the one lying underneath had this artificial tooth and the identification was thus positively established which would otherwise have been quite impossible.

There was a time when some of our own men, notably Dr. Koch and Dr. Swain, laid aside their vocation as dentists and made war their vocation for the time being. Dr. Koch, before he was 21 years old, was provost marshal in one of the Mississippi towns under authority of the United States Army, and if you know what that means you will realize that this man before he was 21 was absolute autocrat of that community. The quality of character and judgment and reputation amongst his fellow soldiers and officers which put him in such a position as that, have remained with him, as you all know.

Dr. Swain once told me, so many years ago that I am not sure of the details, the account of the charge of his regiment at the Battle of Missionary Ridge. He said he was ordered to take a certain line of rifle pits at the foot of the hill. When his regiment went in to do it one of the captains succeeded in discovering that a section of the rifle pits had no men in it. He crowded one of his companies through the gap, and the line of rifle pits was captured. They had been ordered to hold them, but found that a Confederate battery on top of the hill commanded them so perfectly that they could not stay there, but by going farther to the elbow of the hill, where the steepest part of the rise began, they could get where the guns of the battery could not be depressed enough to reach them, and they were ordered up there. For some reason, probably because they misundrstood the order, they did not stop in the shelter of the steep ridge, but started on up the crest, and the rest of the division, seeing the movement and supposing a general charge had been ordered, supported them with a rush and the crest of the ridge was captured. (Laughter.)

Dr. C. E. Bentley:

Mr. President, discussion of this subject is an impossibility. The subject has been thoroughly covered by the essayist and the two gentlemen who followed. I do not intend to discuss it, as it is a matter with which I am entirely unfamiliar.

Dr. Koch attributes to Dr. Cigrand another qualification to his many qualifications, that of poetry. All history is filled with poetry, and if what we have heard and seen tonight is poetry, I am proud for one of this poetic evening. It has been educational to me, and I know that to the most of you it has been likewise. I have learned of more avocations of dentists tonight than I have ever known of before. If Dr. Cigrand can give us what he has with his poetic temperament, I say, then give us more poetry. If any lesson is to be drawn from this lecture it is this: That every man should have an avocation along with his vocation. The subject of the lecture was as to what men have done outside of the profession, and I am sure that you must agree with me that the subject of the lecture has been justified, and if the younger men can take this lesson home with them then the evening has been of great benefit. Along with your vocation have some avocation. You are developing a dual side of your nature. Then, too, we old men can take a lesson, and they have begun to class me as old man now, for there was an instance to which the lecturer referred where a man of 90 years of age was practicing dentistry, and at 97 is engaged in an avocation.

Now, there is one other tribute I wish to pay to the essayist. If some other man had come before the Chicago-Odontographic Society and lectured to us on a similar subject, one of the most prominent pictures that would have been thrown on the screen would have been that of the man who delivered the lecture this evening. (Applause.)

Dr. Cigrand is more than a dentist. He is a man of civic world importance, and has made himself felt in a civic way in this community. His reputation transcends the limits of this city. Dr. Cigrand is an authority on heraldry. Dr. Cigrand is almost peerless on the question of seals. He has written a book on that subject. He has written a book on the history of dental prosthesis. Add to this his splendid poetic temperament and we must all concede that Dr. Cigrand is entitled to our consideration. (Applause.)

Dr. Truman W. Brophy:

Mr. President, it seems to me that the keynote was struck by the last speaker when he stated that this is not a debatable subject. I have been very greatly instructed along certain lines by the lecture we have listened to, and wish to add that all the last speaker said in regard to the work of Dr. Cigrand is correct. Imagine the time and effort that have been devoted to the preparation of this lecture, the research and study in Europe and in our own country. Add to this the work of looking up the history of these men, and I really marvel when I think of what he has accomplished.

I do not wish to detain you. I desire to express to Dr. Cigrand my appreciation of his effort, and to thank him for the great fund of information he has given to the members of the Society, and to myself in particular.

Dr. Lewis, Austin, Minn.:

Mr. President, I agree with the gentleman who spoke previously, that this subject is hardly open for discussion. I think that a man can make himself ridiculous by trying to talk about something he doesn't know anything about.

I want to assure the Chicago-Odontographic Society that I have appreciated this lecture. I am glad to be with you this evening. The men of the northwest owe a great deal to this Society. I am glad to belong to a profession that enlists so many eminent men. I feel that all I know indirectly comes from the city of Chicago. I want to thank you for inviting me to speak, although it is a subject I know very little about.

Dr. C. F. Hartt:

Mr. President, S. S. White's name was mentioned tonight, and I wish to say that he was the first man at the time the war broke out to take a thousand dollar bond in order to show his confidence in the United States Government. And here is Dr. Brophy. Where is there a man who has done as much for dentistry as Dr. Brophy? It was his earnest effort that induced Dr. G. V. Black to come to Chicago. He also entertained Dr. Evans in his own home in Chicago, and years ago when a great many of us were poor, the doctor always managed to pay car fare. He made it very easy and pleasant for us, and has often encountered physical dangers on account of the stand he has taken in bringing the dental profession of Chicago to a higher standard. He made his foundation so broad that we who are prospering in Chicago are building on the great stones Dr. Brophy laid when he was a young man.

DR. G. W. DITTMAR:

Mr. President, I do want to emphasize what Dr. Bentley has stated and also what Dr. Brophy has stated regarding Dr. Cigrand. I am a great deal more enlightened than when I came here.

DR. CIGRAND (closing the discussion):

Mr. President, the lateness of the hour, and the continued effort to make this a dental talk instead of a talk outside of dentistry will cause my discussion to be very brief.

Dr. Koch mentions a dental school having been started by Dr. Westcott, and various other things. This is an evening devoted to subjects outside of dentistry. Let me say that I am astonished that a gentleman who has given some consideration to this subject could be so generally ignorant of the general outlines of it. Paul Revere today, in modern encyclopaedias, is referred to as having been a dentist, and I want to tell you for your personal benefit that when this lecture is published it will be published with complete annotations, so that in your leisure you may go to your library and familiarize yourseleves with the facts. The things that he says I am wrong about are the very things that I took from his History of Dentistry. (Laughter.) When this lecture appears in the DENTAL REVIEW there will be annotations on every page. The statement I made that Dr. Evans was very influential in retaining the good will of France was taken out of Dr. Koch's own writings. (Laughter.)

Dr. Koch speaks lightly of poetry, but I beg to remind him that all the beauty, all the grandeur, all the heroism, all the devotion and sacrifice the world now possesses has found its most enduring blazonment in soothing or thrilling lines of immortal poems. As Schiller has said, poems are monuments more enduring that stone or metal, and whenever the world wishes an act or deed left as a legacy to unborn generations, it looks for a poetic mind to engrave it in the form of rhyme. I thank Dr. Koch for this underserved compliment. This part of my lecture is prose.

The one thing that is sweet about it all is that I received the finest encouragement in my years of study from the men whose pictures are in the group, and I want it to go down in the record of this discussion that Dr. Charles McManus, Dr. Boardman of Boston, Dr. Thorpe of St. Louis, Dr. B. Holly Smith of Baltimore, and other doctors from practically every large city in the nation were most encouraging in this work, and I thank you from the bottom of my heart for having come to this meeting and giving an opportunity for the people at home to be instructed in this matter. There will be other men who will take up the work when we are dead and gone. For this opportunity, and for this alone, I thank you. (Applause.)

ODONTOLOGICAL SOCIETY OF CHICAGO.

A Regular Meeting Was Held March 1, 1910, With the Vice-President,
Dr. C. N. Johnson, in the Chair.

Dr. Edward A. Royce read a paper entitled "Paints and Enamels."

DISCUSSION.

Dr. F. E. Roach:

Mr. President, I feel a little embarrassed at being called upon to open the discussion. In the first place, I am of so nearly one accord with Dr. Royce that I feel that there is hardly anything for me to say on the subject, and I thought possibly later on someone might raise some questions that would give me an entering wedge.

The subject is one of intense interest to me. As many of you are possibly aware, I have been interested in this subject with Dr. Royce, and we have made experiments somewhat extensively together, and I think there is a great deal of credit due Dr. Royce for the efforts he has made toward the improvement of the cosmetic effect of our prosthetic work in the variation of the shades in artificial teeth. In my study of this subject I was led to make experiments with the various stains on the market long before the experiments with the Lennox stains referred to by Dr. Royce.

And I quite agree with Dr. Royce in regard to the difficulties met with in the mineral stains furnished by S. S. White and Brewster in regard to the coarseness of the material. It is entirely too gritty as furnished us by these manufacturers, and it is practically worthless for the purpose of making changes in the color of teeth, and it seems to me that the time has arrived for the manufacturers to take this matter up and give us what we need.

I have had occasion since our joint clinic and paper at our State Society to present this subject to several societies since that time, and I have noticed the greatest interest by the profession, which is evidence of the fact that the profession needs something of this kind in its work. The artists' supply house here tells me that they have sold some 300 sets of these colors since the meeting of our society. That is further evidence that there is need for something of this kind, and the objection that has been raised by Dr. Royce to the materials furnished us by the supply houses, and the objection that he made to the material as furnished by the art stores is also true. They have not mixed those colors with reference to our needs, and consequently in the purchase of these materials we are compelled to make some mixtures of these colors in order to get the colors as we need them. There is a necessity for a better and more suitable material.

I think that Dr. Royce's statement is also true with reference to the greater advantage of the enamel stain over the flux paint, and while the impression might be gained from Dr. Royce's statement that flux paint will not unite with the surfaces of the porcelain as readily as the enamel paints, I believe it is true that the flux form of stains will unite equally as well, if not better than the other so far as actually becoming an integral part of the porcelain, for the reason that the more flux you have the greater tendency there is for fusion and union of the stain with the surface of the porcelain. For that reason I think that there is better union provided they are carried up to full vitrification, or to approach to the maximum heat at which they are to be fired.

As Dr. Royce has stated, the materials furnished by the supply houses when ground to an impalpable mass, are so radically changed in the grinding that they are no longer of use to us, and it is the experience of everyone that if there is much left for the dentist to do in the way of the preparation of his materials for use, and unless they come to him in a nearly perfect condition, they will be thrown aside.

The dentist will not take the time himself to do the little work necessary to accomplish results.

Anyone who has had any experience in the use of these stains, and who has seen the great advantage of them in the production of artistic work will readily appreciate their value. There is nothing that has come to my hands as an aid in my practice that has given me the degree of satisfaction that has come from the use of these stains, and it has gotten to be the habit with me to do a little "calcimining," as someone has called it, before I am satisfied with the teeth.

I thank you, and I feel that it is a great honor and privilege to meet with this society, composed of men of the highest type of gentlemen and practitioners.

DR. C. S. CASE:

Mr. President, from a practical standpoint I know very little about the manipulation of coloring of artificial teeth, although as a porcelain worker I used to take a great deal of pleasure in that special field. Dr. Royce's former paper was a great revelation to me. I had stumbled along many years endeavoring to obtain the natural appearance of artificial teeth, and I was greatly surprised to find that it was largely due to the fact of the great variety of color. I never realized before the vast difference, and I have given considerable thought to the subject since. I have noticed for some time that there is a surprising difference between the one side and the other of the face, and this is also true in regard to the sizes of the fellow teeth, so that it is very necessary in taking the measurement of the teeth to know which side of the mouth the measurement is taken from. I think you will find that this is true throughout the whole anatomy, and the reason that dentists have not attained to real perfection in the selection of artificial teeth is that they have not appreciated the variation in color and size. In other words "normal" is not necessarily "typical"—in fact, it is rarely typical—in the coloring, sizes, position and occlusion of teeth as in other parts of the body. The mechanical artisan blindly strives to reproduce the typical. The artist should strive to reproduce the normal, or natural in nature.

DR. F. B. NOYES:

Mr. President, I appreciate the honor of being here tonight. I have known of the society ever since it was founded.

The subject of the discussion is one that should attract the interest of every practical dentist. It has always seemed strange to me that the same shade should be used from the central to the second molar. No natural denture fulfills those conditions. It is an anomaly, and the greatest cause of the artificial appearance of the substitute is the uniformity of shade.

Dr. Case has nicely brought out the variation in the degree of shade that occurs in different dentures. There is a very great difference in the central and lateral and cuspids in different mouths. In some mouths the cuspids will be only a little more yellow, while in other mouths they are very much more yellow, and no rule of the manufacturer can meet those conditions, although they may be approached. The modification will remain with the operator provided he is an artist as well as an artisan, and supplies not only the means of masticating the food but the artistic reproduction of the original facial expression, and it seems to me therefore that this manner of shading is one which every practitioner must meet and study.

The technical points which the doctor has presented have appealed to me, and I have encountered, I think, all the difficulties that he has mentioned. It seems to me that he has indicated the solution of these difficulties, the need to modify the material, the reduction of the quantity of color by fine pulverization as a natural consequence, and in order to do that we should have different materials to start with, and they should be supplied in a degree of minuteness required in order that further grinding should be unnecessary on the part of the operator.

The question of paints and enamels is practically entirely technical. Results may be obtained with either material, but the advantage would certainly remain with the enamels provided the quality of the colors could be maintained. The shade of single facings is an important phase of the subject. There is so much difference between the occlusal and gingival thirds in different teeth that it can be remedied best through a modification by the operator, and the whole subject is one that needs to be brought to the attention of the entire profession, and when this is done it will improve the quality of artificial substitutes fully as much as any one factor.

J. E. HINKINS:

Mr. President, I know very little about this subject, but at the time Dr. Roach presented his first paper I felt that this was a long-felt want. I never tried to do any of the work until after the meeting of the State Society. Since that time I have done staining or shading which has been eminently satisfactory to my patients, and I am under many obligations to Dr. Royce. I have followed out his suggestions almost to the letter. If I have now to put in an upper denture, I leave the central incisors alone. I make the cuspid a little more yellow, and I am not very particular whether I put it on a little heavy on the bicuspids and molars. I do not want them all alike. I stick them in the furnace and bake them. After the teeth come to me I articulate them and I take the Lennox paints and paint them as it seems to me they ought to be painted and send them back for finishing. My results have been very gratifying. I have done nothing with the enamel Dr. Royce speaks of, but this method is certainly a very decided advantage and benefit to the person who needs an artificial substitute, and I thank Dr. Royce for his paper.

Dr. P. J. Kester:

The hopeful sign in the paper of Dr. Royce to me is that it seems to be the taking of dentistry out of the hands of the artisan, and putting it into the hands of the artist. The one great objection to the ordinary artificial denture was that it did not look like teeth at all—showed the lack of artistic ability. I, myself, have had no experience in this work, but it seems to me that it is a large step in the right direction.

Dr. J. H. Woolley:

Mr. President, it seems to me that Dr. Royce has suggested to us something beyond what we are accustomed to. Going back in art we know that the great Corregio, for instance, was a marvel in producing flesh tints, and it was because of his wonderful ability in mixing colors. The same thing is true of Raphael and some other of the great artists whose paintings still are almost the same as when touched by the master hand. I have been very much interested along these lines that the doctor has referred to, although I have not spent as much time in the mixing of colors. I would like to ask the doctor whether he can produce those results in colors in the same way that the artist does? I have often desired in a similar way as these artists referred to have done to produce such results in the mixing of the porcelain colors. The question I want to ask is whether we should not have that same knowledge of the mixing of colors that is possessed by these artists?

Now, the only colors that I have worked with have been those of Brewster, and although I have not attempted the very delicate shading, yet there have been very few instances that required very much mixing. Then I want to ask him the question, as he has worked along these lines, why is it that in the porcelain results, that some of the teeth that we place on roots change in color and grow darker? In matching color I try to select those teeth that are not quite so dark, because of this change in the color.

Dr. J. G. Reid:

Mr. President, the subject of staining the teeth I think generally impresses the man who wants to accomplish the best results as being an important one. The fact of the matter is that you have to mix your colors with brains, and the gentleman who has read the paper, and the man who opened the discussion have been a number of years putting brains into their mixtures, and it takes a long while for anyone to sit down and put his brains into paints. What they are seeking to do is to simplify this matter. I presume that Dr. Roach has painted a thousand teeth in the last two years in trying to simplify this system so that you and I can apply it. If I have to get down and study it and you have to get down and study it, it will not be done at all. Somebody must spend a great deal of time in making this system applicable. They have been working at it and have accomplished a great deal, yet at the same time they admit it is not perfect, but they are making it simpler. I see what Dr. Roach is doing every day, and I know that he and Dr. Royce are accomplishing great results. There is hardly a day goes by that they do not find some application in the painting of teeth to more nearly conform to what is beautiful and natural in the human subject.

The staining of teeth is of very great importance, and it is wonderful how artistically and beautifully it can be done to match a natural tooth on one side, where you have a guide to go by. You take a full denture, and putting stains on it is another proposition altogether. There you must have a picture in your own mind, and every individual has a different idea of what that expression should be. There is no rule that can be laid down as to the painting of a set of teeth. There must be some expression in each individual which is different. We do not have the same picture impressed upon us as to how to paint a set of artificial teeth. You have no fixed rule to go by. What will apply to your case will not apply to Dr. Noyes' case, and you have to produce that picture yourself. The utility of this proposition is in the direction of supplying one, or two, or three teeth where you have something to govern you. Then you can absolutely and without any doubt almost perfectly imitate the natural teeth. The dentist himself would not recognize an artificial tooth that has been put in by the expert operator. Sometimes you want to stain an inlay. You can do it to perfection. Those are the conditions that arise to my mind where the importance of this staining proposition is made evident.

Dr. E. R. Carpenter:

Mr. President, there is absolutely nothing that I can add to this discussion, because from personal experience I know nothing of it except the pleasure of having seen Dr. Royce and Dr. Roach demonstrate it at the State Society. That it is a wonderful field for us, there is no doubt, but like all great innovations, the burden usually falls upon the shoulders of a few enthusiasts to perfect it. I have absolutely no fear as to its future.

There is only one question I would like to ask of the essayist as pertinent to this subject, and that is, would it not be a more permanent operation were the glaze to be removed from the facings before being painted?

Dr. Truman W. Brophy:

Mr. President, I feel like my friend in the corner who declined to speak on the ground that he was not in condition to do so.

The excellent paper, and the remarks made have made an impression on my mind that I wish to speak of, and that is that we are here in the company of specialists. I was impressed with this fact as the essayist was reading and I was impressed with the fact that his mind had been working along these lines for a great many years. He first made his reputation on gold, sponge gold, and fine serrated pluggers, and he produced fillings of a highly artistic type. Now he is making himself renowned by studying the problem of shades in artificial teeth and I predict a great future for this recent advance in our art. I have enjoyed the paper greatly and I feel that it will do good.

Dr. L. L. Davis:

Mr. President, I was never able to do anything with the oil stain of Brewster. Since obtaining the Lenox stains I have accomplished better results, but I have not always succeeded in obtaining the very best results. When you get away from the two central teeth you can vary your color enough to get approximate shading. I am proud of one of my cases. I had Brewster make six central incisor teeth for one lady, but the lady would not have them. I got the best result she has had with the Lenox stain, getting teeth that very nearly approached in color. I found nothing that is manufactured that matched her teeth.

DR. C. N. JOHNSON:

There is just one thought that appeals to me tonight, and that is this, that before we can get the manufacturers to furnish us with correct stains we must first educate the dental profession so that they will support the manufacturers. When a firm will go out of its way to get stains in accordance with this idea, only to have the sets universally returned to them on account of being off-shade, it seems to me the first thing is to educate the profession.

Dr. Royce has done a very great service to dentistry in its artistic phases in bringing this subject before us, and we need to have it repeated frequently. He has told us that there were 300 of these sets sold in the city after the convention. Dr. Royce is entitled to the thanks of the profession for introducing these variations in shade to us some years ago, and continuing the study of the subject.

I want to refer to one matter connected with the set of teeth which has been passed around. It may be due to the artificial light, but I would like to ask Dr. Royce if the shade of these cuspids is uniform from the gum line to the incisal edge. If it is, I would suggest that the shade should be made very much deeper at the gum line, and shaded down to the incisal.

DR. ROYCE (closing the discussion):

I will answer the President's question first. That set of teeth was stained merely to show that the stain could be floated smoothly. The difficulty in working with these stains is that the colors are reduced by pulverizing, which prevents the results one would expect to get. My object was to show that the stains could be worked, not that I considered this set of teeth as a sample set.

I think we have all noticed a difference on the two sides of the mouth. The colors of the teeth on the two sides vary. The two central incisors do not always agree, but if you go into the minutiae the profession will not touch it. They are not mechanics. They are not artists. They are imitators. One of the greatest uses for the stains is in changing the shade to harmonize with the surroundings in the insertion of single crowns or bridges. There are no teeth to be matched in the mouth except the central incisors—not even the opposite teeth.

Perhaps the explanation of why the "dub" does better than the artist is that the artist tries to match something. The "dub" doesn't. The "dub" will put a black lateral and a yellow cuspid or anything you want in the mouth. If you break up the monotony you improve the appearance. Nature doesn't do things artistically in the mouth after a patient needs artificial teeth. It is not according to the mechanical artist. This is a rule you can lay down, that you should make something to harmonize, but not to match. You can get very great assistance if you have some of the lower teeth from the fact that the upper centrals should be a trifle lighter than the lower, and the upper cuspids a trifle darker than the lower cuspids, and the laterals to harmonize, and the bicupids will, in some cases, be a little darker than the cuspids, but usually they will be lighter. Temperaments have something to do with this. You will find much less variation in blue-white teeth than in yellow teeth. You will find a certain class of yellow teeth that will run to a brown cuspid and another class will run to a deep yellow cuspid. If there are any teeth left in the mouth, that will give an indication of what is needed.

In regard to the mixing of colors, we have printing companies that are able to do all sorts of printing with three colors. They use yellow, blue and red, but the dentist cannot do that. We want the colors to come as nearly ready for use as possible. Then, with a little white you can reduce the color, or possibly the least bit of pink may make the color a little livelier. With black you can intensify. You must take into consideration the teeth that you are painting over, because the color of the teeth will show through. That can be quickly learned by anyone who will notice the coloring. This is not painting of the teeth, even if you use paints. The minute you fuse at a temperature that causes it to become part of the teeth, it ceases to be paint and becomes a stain. If anybody attempts to paint teeth and leave it as paint on the teeth, they are simply wasting their time. I never have found any advantage in removing the glaze if the temperature in fusing is raised high enough so that it becomes a stain.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

THIRTY-SEVENTH ANNUAL MEETING AT PARIS, MARCH 25-28, 1910.

Discussion of the Paper by Prof. Sachs on "Gold Inlays as Abutments for Bridges."

Dr. L. C. Bryan (Basel):

Said his colleague, Dr. Thiersch, was very successfully continuing the work he himself had been carrying on in Basel, and he should be glad if Mr. Thiersch would open the discussion on Prof. Sachs' paper. Mr. Thiersch and himself had done similar work for many years with great success and he had nothing but approbation for the method of Professor Sachs. There was a time when the destruction of the pulp of teeth to replace a bridge would have been considered as a great piece of malpractice, but nowadays it was a quite recognized thing with some people. He did not know that he had ever done it, although under certain conditions he might have. Where teeth had been lost there were usually cavities provided by Nature for the attachment of a bridge, and where not it was for the dentist to decide whether the utility of a bridge was sufficient to make the sacrifice of tooth substance.

Dr. W. Thiersch (Basel):

Said he was particularly happy to be allowed to say a word in the discussion because he highly appreciated the honor of speaking before the Society. For many years Professor Sachs had been one of the great champions of conscientious modern dentistry, and when a man of his standing came along with something new it was quite unnecessary for anyone to stand up and emphasize his statements. The only excuse he could offer for intervening in the discussion was that he was particularly interested in the subject. From the year 1906 he had been trying to recommend to his colleagues in Switzerland the use of gold inlays. Two years before the introduction of the casting metals materially simplified the technique of gold inlays, at a time when dentists were smiling at the use of such a complicated process for constructing inlays, he had been engaged upon the work, and next month he was presenting the Swiss Society with a paper on the utility of the gold inlay in connection with bridge work. Dr. Bödecker in Berlin had recently written a book on Gold Inlays, in the first chapter of which he stated that the technique of gold inlays was so difficult that he would not advise anyone to use the inlays as pillars of bridge work or retaining appliances for pyorrhœic teeth, and it was that statement that caused him to collect his own cases in order to demonstrate them to the Society, although he did not think he should be able to show anything beyond what any good dentist was able to make. It was well known that for a long time the shell crown which had been the principal attachment for bridge work was, in many cases, an excellent thing to use, but it was not quite in accordance with prophylactic treatment, or a thing to be used in connection with cases of pyorrhea. No matter how closely a band was fitted it would be always a source of some irritation, and might be a source of great irritation. Therefore shell crowns should be used only where absolutely necessary, where so much tooth structure had gone that it was not possible to use other means. Where, however, there was enough tooth substance for inlays, inlays were much preferable, and they would avoid the necessity of devitalizing teeth. There were two points on which he could not agree with Dr. Sachs. Dr. Sachs said, "But experience has proved that those bridges, with inlays, simply cemented in the cavities without a pivot reaching in to the devitalized pulp chamber are not successful. The force of mastication will soon loosen those inlays in their cavities. He could not agree with that statement. He had quite a number of little bridges where he had two abutments which were both inlays and which had done excellent service. One of the bridges was being worn by Dr. Guye of Geneva, who was present and could say that it had done very good service for three years. To a great extent it was a question of the preparation of the cavity. To prepare a cavity that would hold a bridge it had to be prepared on somewhat different lines from those where a cavity had to be filled; it must be prepared with a special view to the attachment required. The second objection to two inlay abutments, according to Dr. Sachs, was the difficulty of fixing both inlays correctly in their respective cavities. He, himself, had not had very much experience, but he could show several cases where a bridge with inlays had been placed on convergent teeth. It was solely a matter of cavity preparation. About two years ago, Dr. Guye of Geneva, in discussing a paper on gold inlays, said that ever since he had been practicing dentistry, about twenty years, the greatest change he had lived to witness was the introduction of the gold inlay. The statement was made with regard to filling teeth with gold inlays and the statement was certainly true, and he thought he was not wrong when he said that the statement was equally true concerning bridge work. He believed in using gold inlays as an abutment for bridge work where it was indicated. He believed there was a new and promising opening for bridge work today.

Dr. O. Solbrig (Paris):

Had listened to Dr. Sachs' paper with great interest and believed it was limited to the subject of gold inlays as abutments for bridges. He certainly agreed with Dr. Sachs that bridges simply soldered to small inlays would result in failure. A small inlay, either in a molar or bicuspid, or even in the cuspid and first molar, with two bicuspids soldered to it, would certainly work loose, and it was necessary to devise some means of obtaining a better result. The value of a spur was certainly a thing which could not be sufficiently emphasized when the bridge was on solid crowns. He knew of many practitioners who were using gold inlays with a slot and spur to allow of a certain movement. In that way there was full resistance of the tooth to the biting force and still sufficient movement of the tooth to prevent the inlay getting loose. An improvement had been suggested to him recently by a friend who made a spur in the inlay; instead of allowing movement towards the occluding surfaces he produced a hole in the inlay and allowed it to play. Downward movement of the plate was impossible, but the individual movement of the tooth was preserved. In such a case the inlay and the abutment would have to be cemented at the same time. In the case presented by Dr. Sachs in his first diagram the tooth had been devitalized and the molar used as an abutment for the inlay. He should prefer to devitalize the molar and make a solid attachment in the molar and make an inlay with a slot in the cuspid. The strength would then be greater in the molar and there would be less risk of discoloration of the cuspid, which might come about in devitalization. In the second place, since both teeth had to be devitalized, he did not see the necessity of having such a complicated attachment, although it was beautifully done. With a pulpless tooth a shell crown might be sufficient. If it had to be done in the way described he would recommend that the inlay should overlap on the distal surface and thus add to the stability. He thought everybody would agree with Dr. Sachs that window crowns were out of date now and were not necessary in daily practice, but he was very sorry that Dr. Sachs had not mentioned the Carmichael attachment, which was a very valuable adjunct to bridge work. In dealing with live teeth the Carmichael attachment was superior to any other; it gave a firm hold of the tooth and allowed of destroying the pulp without giving too much pain. A molar was most painful to prepare because the preparation had to be deep enough to allow the spur to go into the inlay. When using an inlay in a bicuspid he strongly advocated the use of a spur such as Dr. Sachs had shown, because it added great strength to the inlay. The great thing was to be careful with the preparation of the cavity. Even with the pivot in the canal the base should be absolutely flat and the walls strong. He should like Prof. Sachs to mention his experience in preparing cavities, especially in molars. The question in regard to inlays was a general one and no statement could cover everything. There were cases where a bridge could be attached to an inlay but it had to be remembered that there were different forms of bridges. If the Carmichael principle was adopted it was possible with safety to attach one tooth to an abutment, but it would be too much to expect a little inlay with saucer-shaped preparation on both ends of a bridge to last. In each case the operator had to use his own judgment and find out what was indicated by the case. The bridges illustrated by Dr. Sachs were only bridges for providing masticating surface in the molar region, but some of the most distressing cases were found in the front teeth. There might be a lateral missing or a central incisor, and in cases of that kind it was very difficult to do any bridge work with satisfaction because one disliked destroying the pulp of the sound adjacent teeth, and in such cases the Carmichael system had great advantages.

DR. H. G. FISHER (Cologne):

Was in accord with Dr. Sachs' idea of not using solid inlays as abutments because he had found in practice they would always come loose. Therefore he was using spurs resting in other inlays. For attachment to a cuspid or even to a bicuspid anteriorly he would recommend, as Dr. Solbrig said, a Carmichael attachment, only he would prepare the tooth a little differently, bringing the gold over the contact point so as to protect from future decay. In the Carmichael attachment the line of tooth and inlay was just at the vital point where a recurrence of decay would always happen, as it was an unclean surface, but if it was carried over a contact point the line was brought beyond the susceptible area and permanency was assured.

Dr. H. W. C. Bödecker:

Thanked Dr. Sachs for the number of new points he had brought out in connection with inlays and abutments, and mentioned some experience he had had with inlays based on the principle. He believed it was in 1900 that Dr. Davenport first suggested that a bridge with one loose abutment would be infinitely better than two tight abutments, as it would have the advantage of a removable bridge in giving the two teeth acting as abutments their normal physiological movement to a greater extent than with a tight bridge. At that time he experimented a little with diatoric teeth and tried some bridges on the principle and found them very satisfactory. When the inlay method was introduced he tried at first a simple rest for the end of the bridge upon the surface, but thinking that food debris might be caught there he hit upon the idea of making a ball and socket joint. He made quite a number of such bridges and some of them had been in the mouth for a considerable time and in some cases acted very well. He would not advise making loose end abutments for more than two teeth at the most. For the ball and socket joint the teeth that were crowned must be very stable. He always preferred to put the shell crown on the molar and let the ball and socket joint go forward. In the first case he made he took an ordinary shell crown and cast a dummy on to it and modeled the wax to rest upon the inlay in the molar, and that, as there were only two bicuspids, was doing very good service. He had some cases in which he was not satisfied with the ball and socket joint. If the teeth were not very tight there was liable to be some movement and the tooth could escape. What was required for the loose end of the bridge was a long bearing surface such as Dr. Sachs had shown. He, therefore, returned to the rest on the surface of the inlay and used a square platino-iridium wire running into the inlay on the first molar. (Dr. Bödecker illustrated his remarks by diagrams on the blackboard.) The Carmichael attachment passed round three surfaces of the tooth, and that was the secret of an inlay abutment. Unless the inlay abutment went round three surfaces of the tooth and grasped that tooth as a wrench grasped a nut, it was of no value. There were other things to be considered in inlay abutments, such as the movements mesio-distally, labio-lingually, and up and down movement in the socket, especially the latter, which should be very carefully considered as it was as dangerous as a mesio-distal movement. With regard to what Dr. Thiersch had said as to the remarks made about inlays in a little book he had recently published, as near as he could remember he said he did not believe it was possible to solder together a number of individual inlays without sacrificing the exact fit of one or more of those inlays. Theoretically it was impossible. He knew it was very difficult as he had tried it with the old soldered inlays and they warped. In theory, the cast inlay must also warp as it was cast under pressure and the linear contraction of metal cast under pressure was a good deal less than that cast without pressure, and if after a thing was cast under pressure it was heated up it was bound to expand. He did not know that that would really affect the practical value. He believed Dr. Thiersch used a reinforcement of platinum wire so that the total distortion could not be more than the distortion of the platinum support.

DR. C. G. HARTLEY (Dresden):

Said that using a combination of vulcanite teeth or a Davis crown with a cast base and cementing it in place made a beautiful bridge without a big display of gold on the surface. If sufficient strength was put into the abutment a very good bridge was obtained.

DR. W. DAVENPORT:

Said he was very much interested in Dr. Sachs' work, but he could not help feeling the principles were wrong. Some years ago he wrote two or three articles on a similar method of anchoring to the back of cuspids and he wished now to take back a great deal of what he said at that time. The inlay shown in diagram 4 of Dr. Sachs' communication was held entirely by a pivot with a certain angle and he had had more failure in making bridges of that kind than any work he had ever done. It was almost impossible to get a pivot strong enough; the leverage, in time, would cause the bridge to loosen. He would warn anyone against making a bridge according to Dr. Sachs' description. With regard to the bridge shown in diagram 10, it was a solid bridge, and, the chances were that it would loosen because the pin was not far enough down to get a hold. If anything went wrong at the molar end he should expect to find trouble at the other end. He also wished to challenge Dr. Solbrig with regard to the window crown being universally condemned. The window crown could be condemned in the same way that anything with insufficient strength could be condemned. Window crowns as foundations, especially on lower teeth, were the most satisfactory things he knew of, but he did not join them to bridges and would not in any case cement the bridge to two teeth, he should always leave the play which was so essential. Nearly all the bridges he had made had a single anchorage. Excepting in very large bridges he found no difficulty in keeping a bridge with a single anchorage in the mouth.

Dr. W. Hirschfeld (Paris):

Immensely admired Dr. Sachs' work but found the technique so minute that professional men could not afford to construct such bridges, because it would be impossible to place the work in the hands of their assistants. Should, however, the dentist find the necessary time, combined with the necessary skill, to do the work, he was afraid that the soldering of the bridge to the two abutments was almost impossible without altering the shape of the inlay or the position. In carrying out the system tooth substance had to be sacrificed, that substance being represented by the inlay. He did not see how in an impression in plaster the exact position of the inlay was to be marked. He was afraid that bridgework based on Dr. Sachs' principles would limit the speciality still more, limiting it to the very few who would take immense trouble.

Dr. Sachs:

In reply, said he had learned a great deal from the discussion. Referring to Dr. Thiersch's remark that he had found in practice that two inlays would hold a bridge truly, he said he had many cases where it was very successful, perhaps in seven cases out of ten, but a method that involved three failures out of ten he would not touch both in the interests of his patients and himself. If there was any chance of failure he tried to find another method by which to do the work. With regard to Dr. Solbrig preferring to destroy the pulp in the molar and not in the cuspid in connection with diagram 1, he thought Dr. Solbrig was right, but if he had the choice of destroying the pulp and treating the teeth by filling the root canals, and he was sure the teeth would never give any trouble, he should treat the case in such a way as only to destroy the tooth with one canal and not a molar with two canals. He had always hesitation in destroying the pulp of a molar if the same thing could be brought about by destroying the pulp of a single rooted tooth. In the cases he had mentioned he had found the hold was entirely sufficient. The Carmichael method was certainly very good but it came a little too near to the window crown and, therefore, he tried to avoid it. With regard to the preparation of the cavities for inlays, if he could avoid the use of steel instruments he did so. He almost always used carborundum wheels. After making a cocain injection he waited four or five minutes and then began to excavate the tooth and shape the cavity, and that could be done painlessly and very rapidly with little carborundum points or wheels. The final shape had to be done with steel instruments, but by that time the tooth was generally so far insensitive that the work could be done without great pain to the patient. In very rare cases he used the Carmichael principle. With regard to the Davis crown, that required a saddle bridge, and saddle bridges he only used in very rare cases where the occlusion was so close that he was not able to make a free standing bridge. It was true that the work was not very easy and required a good deal of patience, but he thought the first thing was to get over the difficulty of the mechanical work. It was necessary to learn the mechanical part of the work as a man learned to play the piano, and then the whole intelligence could be put into the doing of the work, confident in one's mechanical ability. It was not a work for a dollar or ten-franc practice; it had to be well paid for. He was very glad to hear Dr. Davenport's objection, but he was not quite of his opinion. Theoretically it might be said that the part of the inlay with the pivot must be loosened by the pressure of mastication, but experience showed otherwise. By using a platino-iridium pin of 1½ millimetre thickness, roughening the pin and roughening the walls of the cavity, and cementing the pin in, no leverage could occur in mastication. He had put in twenty-five such bridges in a year and had not had one failure yet. There was always a difference between theory and practice. If he made an inlay which theory showed would hold he should have to weaken the cuspid so much that he would rather cut the whole cuspid off and make a pivot tooth and solder the whole bridge to the pivot tooth. Dr. Solbrig thought that the bridge would hold much better if the inlay overlapped the distal surface, and that was perfectly true. There was a tube on the molar going to the bottom of the cement chamber and the whole inlay with the tube was roughened and the cavity walls roughened and in some cases he even put a little overhanging plate on to the tube, and he should like to see how that could give out; the whole tooth must come out first. If a tooth was tipped over by the masticating surface it would tip over just as much with the overlap. With regard to diagram 10 which Dr. Davenport found fault with, the whole thing was so strong that he did not see how it could be strengthened. The principle was new and he had not used it for a year and, therefore, time had not elapsed to judge as to its merits. Perhaps he would have the chance of reporting in a year or two how the thing stood. It had to be remembered that in his paper he did not go into the whole subject of making bridges with inlays. That was a large subject that could not be discussed in a short paper. He had only picked out one or two cases which he hoped the members would try and give him the benefit of their experience.

DISCUSSION OF THE PAPER OF DR. SOLBRIG, ON "PROPHYLACTIC TREATMENT OF FISSURES AND PITS OF THE ENAMEL."

Dr. L. J. Mitchell:

Said the subject dealt with in the paper had been presented to the profession for a great many years and he believed the more often the operation was advocated the less objections would be found to it. In looking over the slides that had been presented, he noticed the essayist confined himself entirely to the normal condition of fissures, but undoubtedly a very large percentage of the fissures that had to be dealt with, and ultimately probably resulted in a large proportion of caries, arose from the fact that the dentin in the fissures was exposed, and hence there was a very vulnerable point for attack by decay. Anything that would practically make artificial enamel for that portion of the tooth was a distinct benefit. He had had no experience with regard to bifluorid of ammonium for preparing fissures, but for the last ten or fifteen years he had been using a solution of bichlorid of mercury in ether and he found that very efficient. He had used the solution as strong as 1 in 200 with exceedingly good results. The operation was so simple that it was hardly worth while discussing it. Many people objected to the oxyphosphate of copper on account of its color but he had found Ames' cement had given a good result. Used in a fluid condition, a very small quantity, just sufficient to fill the fissure, was all that was needed. If spread there was a tendency for it to be disturbed by mastication and the cement in the fissures would not last so long as it would when it only just filled the fissure and no more. As was well known, children did not take the best care of their teeth and during the time of regulation there was less inducement for them to exercise care, and it was his practice before commencing cases of regulation to fill the fissures of the molars and bicuspids, and very frequently also the labial pits of the upper centrals, and partly the fissures of the upper centrals and laterals. In that way he had had no trouble and none of the results often found after six or nine months' regulation and during the time the retaining plates were being worn. With regard to the first permanent molars, when the second molars had come forward it was good practice in connection with the second molars as in connection with the first—because often the eruption was not very rapid—simply to clear out the fissures and fill them. It was only by bringing forward old friends that men who had not adopted the practice had an opportunity of giving it a thought and a trial, and he was sure they would give it a trial. He had been using the method for the last fourteen or fifteen years; it was brought to his notice most prominently by Dr. St. George Elliott and his experience had given exceedingly gratifying results. It was well worthy of the members taking it up in a more serious way than they had hitherto done.

Dr. G. O. Webster:

Said that Dr. Solbrig had succeeded, as he always did, in bringing forward something of a practical nature. He, himself, however, was not qualified to speak upon the subject for the reason that he had not had any practical experience with Dr. Solbrig's ideas. There were two things that occurred to him in connection with the paper. In the first place, Dr. Solbrig spoke of the necessity of not using the method in a cavity where decay had already taken place, apparently advocating not excavation but the simple cleansing of the fissure. How was it to be known, in deep pits, by visual examination, whether decay had commenced or not? It had occurred to him that in many cases there must be a certain amount of breaking down of the hard tissues. The fissures were very narrow and very deep. It came back, as always in the discussion of such questions, to a question of temperament. It was well known that children were very often as amenable to permanent dental operations as older persons. It was recognized that the fissures existed in normal teeth, that they really invited decay, and that caries must eventually be expected. If the patient was ill or neurotic, one had to do what was felt to be expedient, but the question arose whether in many cases it was not just as well to fill the tooth permanently as to temporize. Temporizing was necessary in some cases, but it was a makeshift expedient at its best and it would seem that in most cases it was possible to perform the permanent operation immediately instead of temporizing for two, four or six years with a full knowledge of what the inevitable result must be.

DR. C. F. BÖDECKER (Berlin):

Thought that temporizing was wise in a great many cases, because the teeth hardened as the years went on and in many cases hardened to such an extent that later the fissures would not decay. There were many persons in whom the fissures would not decay. It was necessary to take into consideration that the patients the dentists saw were patients with poor teeth. There were 10 or 15 per cent of the population that never went to a dentist at all, who had no use for a dentist, and they did not suffer from caries. Again, in the patients there were about 20 or 25 per cent with a great many fissures in the teeth which did not decay. Therefore, he thought Dr. Solbrig's plan for temporizing was a very good one, especially with children who were careless with their teeth. It also saved pain to the patients. Children were very keen on remembering that the dentist had hurt them and they got a fear of the dentist for the rest of their life. If treated carefully, however, that fear was not developed and afterwards they became very good patients.

DR. W. A. SPRING (Dresden):

Said he was unable to gather that the essayist used any remedy after the application of the bifluorid of ammonia to counteract any unfortunate action on the teeth. It was a very powerful remedy and he personally should hestitate to bottle up in a deep crevice any such medicament, for fear that it might do some harm to the enamel by its permanent presence. Otherwise the method appealed to him as very reasonable.

DR. O. SOLBRIG:

In reply, said he was sorry Dr. Bryan was not present as he had carried out a good deal of prophylactic research and had had some experience with nitrate of silver, and it would be interesting to know whether he had treated fissures in that way. He himself had read the description given of Dr. Miller's experiments with nitrate of silver on fissures and on enamel but Dr. Miller did not seem to have had any specially good results. The discussion had certainly brought out points which were very valuable. He was specially glad to hear that Dr. Mitchell had been doing the work for some time and could therefore give data which he himself could not give. His own experience extended over four years and was very gratifying. Perhaps Dr. Mitchell would be able to say something about the nature of the treatment and whether it had to be repeated after a certain time. Temporising he thought was of great importance. Children were brought by their mothers, who said "I place the child in your hands and I want you to do everything you can to keep the teeth in a good state." He had not gone to the extent of asking his patients to come in every month, but had thought that by seeing the patients perhaps three or four times a year he could keep the teeth so clean that decay was not likely to start in the proximal spaces. He was very careful in instructing his patients or the nurses to keep the teeth in good condition. With regard to the fissures, it was of importance to deal with them between the ages of six and twelve. In some children, no doubt, it was possible to cut out the fissures and put in gold fillings, as he had done, but he thought it was better, especially in weak children, to clean out the fissures, and fill them with the cement Dr. Mitchell had referred to, which would last, as his experience showed, for four years, and by that time the child had grown up. If the cement lasted longer a period would be reached when the child would take better care of its teeth and the teeth would stand better filling. It was not perhaps an easy matter to determine whether decay had started in the fissures, but taking the first permanent molars just shortly after erupting there was very little danger that decay had occurred. Moreover, decay occurring under the fissure had decalcified the enamel to a certain extent, and the bifluorid of ammonium, which did not attack the healthy enamel, would disintegrate the softened enamel sufficiently to allow of removal by scraping with a thin probe and to detect whether there was decay underneath. He had not yet found cases where that was doubtful. Of course if decay had appeared it would be malpractice simply to cover it over, and that was not at all the intention of the paper, which dealt with prophylactics. If the disease was already established it was necessary to resort to filling the teeth. Fissures had been seen that had never decayed, even at the age of sixty years. He had a very peculiar specimen of that nature and on examining it closely he found the fissures were filled with tartar which seemed to play the part of cement. The question was really new to him and he had not gone into it sufficiently to determine whether tartar was formed in children. Children never had that hard tartar which was found later on in life and the fissures were certainly not filled with the tartar. Undoubtedly the teeth hardened to a certain extent. He remembered Dr. Head saying that enamel after a certain amount of treatment—and very likely that treatment could be replaced by mastication—seemed to harden. As to bifluorid of ammonium being bottled up in a fissure, there was no danger, and he thought Dr. Spring would not hesitate in using it if he remembered that the bifluorid was just put there to destroy any mucous and gelatinous mass or debris. and helped materially in destroying them, and gave a fissure that could be cleaned much easier. After its use the fissure was washed out with alcohol and dried thoroughly and there was no danger of any acid staying there.

ILLINOIS STATE DENTAL SOCIETY.

FORTY-SIXTH ANNUAL MEETING, SPRINGFIELD, MAY 17-20, 1910.

DISCUSSION OF DR. POUNDSTONE'S PAPER, "ARTIFICIAL ENAMEL."

(Published in the August number.)

DR. D. M. GALLIE, of Chicago:

I did not know until the issuing of the program that Dr. Poundstone was to confine his paper to silicate cements. As I have had little experience in the use of this material I do not think it will be necessary to have the Chairman call me for going over the prescribed time.

I want to congratulate the Program Committee and the essayist for presenting a paper of this kind at this time. It is always well to issue a timely warning. These cements have struck the profession in the form of a tidal wave. Many of our members are carried off their feet by golden stories of its efficiency which usually come from men who are giving exhibitions outside of the mouth.

My experience and observation bear out what Dr. Poundstone has said. I have seen in some mouths work of men who have made some reputation with this material, and who have claimed splendid results, where there was anything but a presentable appearance in a short time. My observations are the same as Dr. Poundstone's, that it is often a porous, opaque, roughened, or discolored mass. They tell us it is always the fault of the man who does this work, but when you think of the precaution that Dr. Poundstone has taken, the taking of the temperature of the room, the investigation of the humidity, the kind of instrument, and the timing of all the different procedures, it is a question with me whether it is the best kiind of material to present because of the great amount of detail in connection with it, and the fact that it is influenced by so many outside conditions and circumstances difficult of control or estimation.

Dr. Poundstone speaks of the favorable cases in which this material can be used; in the mouth that is clean, with well shaped teeth, and the saliva favorable, etc. It seems to me that it is in another kind of a case entirely where this material is indicated. In those cases where teeth are almost hopeless, where it is the only alternative for crowning or putting in an artiificial denture. It is in such teeth that the manufacturers advocate silicate cement. The investigations of Dr. Poundstone show that in such a case it is practically useless. In the mouth with favorable conditions it seems to me that the material to use would be one that could be looked upon as a permanent filling, a porcelain inlay or amalgam or gold restoration, and not a filling that is so uncertain and unreliable. He tells us that it has no marginal strength, and it does not adhere to the cavity walls, and if in close proximity to the pulp may cause its death. I do not understand why we can seriously consider a material that has so many short-comings. His advice to us is that we should not entirely discard it, but continue to use it, so that if it is possible to bring out its virtues, we should be fair enough to do so.

I have recently received a large sample of material from Germany by a manufacturer of similar name, who claims the superiority of his material over the Ascher, and that it can be used in close proximity to the pulp; that it adheres to the cavity walls, and possesses all the virtues that the others do not have. I have used it to some extent as a courtesy to the manufacturer, and some cases in a short time have returned looking splendidly; while other cases were unsatisfactory and I do not desire to claim anything for it at all. It is not a question of discarding or advocating it, but to have a proper appreciatioin of the limitation of this material just as in every other line of practice.

Dr. H. L. Whipple, of Quincy:

Dr. Gallie has stated just exactly the feeling I have regarding this paper. Until I received the paper I did not know that it would be limited to a consideration of the silicate cements, and these I feel I am least prepared to discuss.

The essayist is not at all enthusiastic on this subject, and I heartily agree with him in everything he has said. He speaks of failures; we may have failures in the use of this material; at the same time we may have many successes under similar conditions. The work would certainly need to be well done if done with silicate cement. Of course we know that we are not all chemists, but to handle this product properly we would have to be chemists. I cannot feel that any product of this kind can be a success unless the manufacturers will produce it as one product. We find, in our examinations by the Board of Examiners that chemistry is a subject that dentists generally know the least about. I concur heartily in what the essayst has said about clean mouths for silicate cements, and theses cases would certainly have to be selected, if such a product is to be properly used.

I appreciate the thoughtful care which was necessary on the part of the essayist in preparing such a paper and I am sure it has been instructive to all of us.

Dr. J. A. Heaton, of Hoopeston:

I enjoyed that paper immensely. I believe the essayist said what he meant, but I cannot agree with all of it, and I am simply going to tell you what I have seen and know for myself.

When I first began the use of enamel I had to urge people to take it, and I had to guarantee that if it did not work right I'd make it right. But now they will come in and ask for it. I believe they will demand it more in the future. Some say it will not wear. I have it in a lateral incisor of mine that is as good as it was the day it was put in, that was about sixteen months ago. About half of the tooth is built up and that over a live pulp. I haven't had the slightest inconvenience from the filling from that day to this. I had it filled twice before, once with gold, and the second time it was a porcelain inlay, which I had smashed in twenty-four hours, thought it was as nice a piece of inlay work as I ever saw. But Aschers' enamel stands there today as solid as the rock of Gibralter.

I am not saying that enamel will make a filling that will last for all time, but my three and one-half years' experience with it has been very satisfactory, and it has been a gain instead of a loss to me thus far. How soon the tide may turn I don't know, it is hardly long enough for a thorough time test. I am not going to tell you to put in all the enamel you can for all the people you can; neither will I tell you to leave it entirely alone, for if it proves to be a successful filling as we learn more of its nature and how to use it, there will be a lot of dentists who will lose out if not familiar with it. The work we are doing today will out-last that we did three or four years ago two to one. Why? Because by experience we can work it better. I can see today what caused some of my failures in the past. I have in mind one case where gold work had been done by three different dentists and that person told me that invariably that gold would fail in from two to four years. Now it was not the fault of the gold, for gold will stay where it is put and not change. I don't think it was the fault of workmanship for I don't think the work of all three of those dentists would have been faulty. Then I infer that it was due to conditions. Between three and four years ago, I put enamel in those teeth and it is as good today as when it was put in. Now what is the reason? I can see none other than that enamel is the thing for that person. I firmly believe it will be demanded more in the future than it is today.

Did you ever have an enamel filling to return to you with decay under it? If you have you have seen something that I never have seen. So far as I know it today enamel can be used in my teeth, and as our experience with it increases, I believe our success will increase with it.

Dr. A. G. Smith, of Peoria:

I want to say that I have had failures with everything I have ever used, to some extent, and I do not condemn utterly anything that I have ever used. Porcelain comes nearest to it. I began to use the artificial enamel three and a half years ago, and was bumped pretty hard the first three or four rounds. I am doing better now. I want to say as positively and strongly as I can that the longer I live the more I bow down before that mysterious human force with which man is endowed, and that is the ability of our ten fingers. It is the one thing that distinguishes the human animal from other animals. You can watch a cooper put up a barrel from now till the crack of doom, but you couldn't do it to save your soul. We all know that it takes a bright office girl to mix cement thoroughly, and this is the case with Ascher's artificial enamel. I would like to get information, if possible, about the treatment of certain desperate cases, large inlays in the posterior teeth that involve the buccal surfaces, where porcelain has failed and gold is objectionable. I have adopted a method of using a wax model and carving out a depression in the exposed surface of the wax model of the gold inlay and the setting my finished gold inlay in the cavity and while the rubber dam is still on and the cavity dry, I make an Ascher's artificial enamel filling in the gold inlay. I have some half dozen such cases that I am watching with great interest, having carefully explained to the patients that I was trying an experiment. The results so far have exceeded my best expectations, the oldest case being over two years old. The gold with the Ascher's facing has held. I have had Ascher's enamel come back with a ginger cake color, but we cannot afford to quit because there is some advantage in that direction and we must give our patients the benefit of it.

Dr. Geo. D. Sitherwood, of Bloomington:

I was gratified to hear Dr. Poundstone's paper on this subject of silicate cements. I have made a very great failure with this kind of filling, and have witnessed many failures of other operators. A number of people with this kind of a filling in their teeth have said, "it looks like dry bread." Why should this be the case, I know not, for I have tried every sort of mixing and every kind of manipulation. Have experimented some on people who seemed to require this kind of service, but in many cases it was a grievous failure. At the present time I am unable to see where it is useful except when I want a temporary filling that will match the color of the tooth. In our town, we have people who make a trip to Europe, being away about three months, and sometimes they want a temporary filling of this kind. I would not be sure that it would remain more than three months. I do not claim to be a scientist, but I followed the directions in regard to the use of this material as closely as I could, but did not get results at all desirable.

Dr. J. N. Crouse, of Chicago:

There is one phase of this subject that has not been touched upon which enters very largely into your mistakes and failures, and it is this, that the same box of silicate cement will make a reasonable filling today and two days after it may not be worth a continental. Now, I am not a chemist, but I have had a chemist analyze these silicates. There is no acid that can be put into the mouth that acts upon silex, and silex is the ingredient in this material. Take any of the silicate preparations and put them in water long enough to harden, and then into a dilute analine, and see what you will find. There are a great many oxy-phosphates that will deteriorate in certain atmospheres, and in the winter time when you have furnace heat, you do not hear so much complaint about cement. I never made but two silicate cement fillings. One is doing pretty well and the other went to pieces right away. We have had two men here who have had no failures, while others equally skillful have had failures. About a year ago in Europe, silicate cements were having a run, and you couldn't put any other kind of cements on the market. The makers are changing the formula and trying to get something better. A certain make is apt to be entirely different three months later.

Dr. Frederick B. Noyes, of Chicago:

I am reminded of a paper which I heard two years ago at a meeting of the Colorado State Society, by Dr. Herman Fleck, President of the Colorado State College of Mines, on the chemistry of the silicate cements. It gives an analysis of most of them. You will find that paper published in *Items of Interest*. I was very much interested in it because a man not a dentist, but a thorough scientific chemist undertook to prepare for the society an examination of that material exactly as he would attack a problem of cements for building purposes. In the first place, he had gotten the dentists from all over the state to give him the theoretical requirements, and he bought on the market all the silicate cements, and examined them to see how they fulfilled the requirements. Incidentally, he gave their chemical composition. The only result of the paper I am going to give you is the summing up, wherein he stated that in every requirement the silicate cements were inferior to the oxy-phosphates.

Dr. W. V.-B. Ames, of Chicago:

I have no desire to make comments on the paper, or the previous discussion further than to say that I liked extremely the thorough way in which Dr. Poundstone went into this matter, and the sincere manner in which he gave you the results as he found them. To comment on this paper any further than that, I need to say that I feel that Dr. Poundstone did not present the subject properly in one respect inasmuch as he confined his remarks so exclusively to one material, and spoke of this material as if it were something in a class by itself, a definite chemical compound, differing entirely from anything else in existence. I don't think he actually meant that, but it might be inferred that he did. What I mean to say is that the particular material of which he spoke mainly, and various others, are merely oxy-phosphates of calcium, modified by certain materials such as silica and silicates. So then, when you come to the chemistry of this subject there is a class of oxy-phosphates which should be differentiated from the oxy-phosphates of zinc in their being oxy-phosphates of calcium more or less modified by silicate, and possibly by the rare earths. This Ascher enamel mostly under discussion does contain beryllium silicate in somewhat more than a negligible quantity, but that much talked of fact does not place it in a class by itself. It will take more than the beryllium content to cure the shortcomings mentioned here today. Among the materials of this class not mentioned today I feel called on to speak of Schoenbeck's silicate which can be said to be establishing a good name, and the Harvardid, which after being improved and reimproved was shown last summer at the Berlin Congress in its latest improved condition. At that time I secured and brought home specimens of this material. From experiments with this and Schoenbeck's I have found that there are possibilities outside of the one material of which we have heard most.

Objection has been urged that the manufacturers of these materials have not given the product in some one form for you to use, as you would use gold or gutta percha. There is not an iota of difference between the use of this cement and the ordinary oxy-phosphate in which you put together a powder and a liquid. Their behavior depends on exactly the same principle. Your mixture will give you the basic phosphate of calcium agglomerating the silicious materials. If you can get the dexterity and become familiar with the peculiarity of behavior of the material, there should be no more difficulty than in getting a fair result with the oxy-phosphate of zinc.

Considerable emphasis has been placed on the fact that you need a cleanly mouth for the use of these materials, and right there, so far as I have gone, is the stumbling block, and especially with the material that has been the most talked of today. You have in this particular material, I am satisfied from tests I have made, ingredients used as pigments which are attacked by the sulphuretted hydrogen developed from the fermentation or putrefaction of organic matter. It is easy to understand that when the pigment of a cement is susceptible to the influence of sulphur compounds, you will have the discloration from the formation of off color sulphids, giving you a porous, friable, broken-down substance. It is for this reason you notice the strong difference between the cleanly mouth and the mouth in which putrefactive changes have taken place. What I want to state is that you should get away from the belief that in any one particular material you have something that is in a class by itself, with inherent virtues depending on any patented ingredient. It is well known that satisfactory results have been obtained from materials which never had a trace of the much vaunted rare earth, and I feel thoroughly qualified to say, that if one rare earth is much better than all others as an ingredient, beryllium is not that one, and that this sort of a patent on this beryllium ingredient has been simply an imposition on the credulity of anybody who would listen to it.

I have in my own mouth a silicious filling on the occluso-proximal surface of a molar where there has been strong occlusal stress. It has been there two and a half years and now retains its original proximal contact. This cement had none of this beryllium ingredient. These cements as a class are oxy-phosphates of calcium, depending on basic calcium phosphatic acid to act as a binder to hold together whatever silicious materials may be used to give the mass integrity.

Dr. Poundstone (closing the discussion):

I have practically nothing to add in closing. I am glad that it provoked the discussion it did, and I trust it will lead to more careful use of this material. I do not wish to be understood as condemning it, but I simply wish to throw out a warning that we be more careful and conservative in its use, and I think a better product will result.

Discussion of Paper of Dr. Hanaford, on "The Filling of Root Canals."

Dr. A. D. Kyner, of Moweaqua:

I wish to enter a mild protest against this eleventh hour completion of programs. Don't understand me as criticizing, fault finding or blaming anyone—but it is due the essayist himself, certainly due to you gentlemen in the audience and most assuredly due to the man who has been requested to open the discussion, that he be given more time than less than one week in which to prepare himself, and you will understand what I mean when I say at the start, that I entertain optimistic views, contrary to the general, unqualified pessimistic conclusions reached by the essayist.

I do not consider this a true test at all of a majority of men's ability to fill pulp canals, but more a test of a man's knowledge of what material to employ in making pulp canal fillings in this kind or method of test. And if we men who participated in this test had not enlarged a single canal, but simply cleansed, dried and saturated them with chloroform and then employed only old fashioned chlora-percha, using tapered broaches of different sizes and warm air to hasten evaporation and the consummate skill of a freshman, we would have convinced the essayist that he had encountered the greatest lot of expert pulp canal fillers that it was ever his good fortune to meet.

From the foregoing you will understand that the verdict of guilty has been pronounced upon me, together with thirty-nine other near dentists, but I don't propose to stand convicted until a few technicalities have been exhausted. If you gentlemen knew the essayist's comment on the root filling that I made and was shown here tonight, you might think that the reason why I have taken this stand—it is not because he said that my filling was porous—that was satisfactory to me and you gentlemen would have known that there was room in those holes for millions of microbes and oceans of water. But he not only said that my filling was porous, but that it was porous as honey-comb, which of course would put any self-respecting dentist on the defensive.

So I protest against this kind of a verdict because the essayist has not qualified his findings, only mentioning freer accessibility as being more favorable than when working in the mouth, but did not state that opposed to this freedom of working conditions were the mechanical difficulties of cleansing and opening up hard, dried, unyielding and shrunken pulp canals in thoroughly dried teeth with the canals filled with petrified and mummified pulp tissue that would make the hearts of Soderberg, Wass, Houghton and others leap for joy, and these teeth encased in dry porous plaster, the latter I think entering largely into results.

The essayist complains that he looked for improvements but did not find them—that lays him open to the criticism that he should not have conducted this test as he did ten years ago. But should have selected freshly extracted teeth, imbedded in some porous substance and kept moist from the time of extraction till filling, examination and photographing were completed. This would have more nearly fulfilled the conditions found in the mouth and we could have arrived at more accurate conclusions.

When I examined the teeth used in this test, I recalled that old epigram, "The highest human achievement is the art of seeing things." I knew that Dr. J. A. Wass had said "that you find the sloppy, slovenly and imperfect work in pulp canal fillings. Prof. Inglis tells us that the "perfect root filing to the apex is a lost art or it never existed." That Dr. Jas. M. McGee of St. John's, N. B., in a test exactly similar to this, could only make three good fillings out of ten, and Dr. Price, who made the skiagraphs in commenting said that the fillings were better than found in the mouth, and many others have commented on the difficulties of fitting a tight root filling in the canals, fillings as the essayist has said that would exclude bacteria. But as Dr. W. D. Miller, *Dental Cosmos,* 1894, has found that bacteria will penetrate hard dentin to a depth of ⅛ to ¼ mm., and Drs. Cook and Webster have demonstrated that all root canal fillings are penetrable, I take it that the merit of a root filling is merely a mechanical occupant of pulp space. Now if we don't do any better in the mouth than these teeth show, why fill pulp canals at all? If the success of this operation depends on replacing the pulp tissue with a tight mechanical stopping and as is claimed that mouth operations are worse than these pictures show, then how do you account for the high percentage of success that the average dentist encounters in this class of work estimated at 91 per cent if his root fillings are so bad? From clinical experience and reading, I knew that pulp canal fillings were difficult to make, but when I first saw these test fillings, they were a revelation to me, and I was surprised and disappointed and the first impulse was to view them as failures. But upon study and second thought, I saw them as merely an obstacle to be overcome, because had not this test shown that one perfect filling had been made and eleven good ones? Now as to the fillings that did not reach the apex in the large canals, there is no excuse, the operator simply didn't have the "push," and in viewing these I imagine that I felt like that old fellow living down in the Mississippi River bottom story, yes, like the flies in the bread, there were too many fillings that should have reached the apex but did not.

The essayist's comment on the smallest canals being the best filled, is contrary to clinical experience and literature. A New York dentist investigating this class of mouth operations, procured from extracting offices hundreds of filled teeth for the purpose of examining the pulp canal fillings in the small canals, and he found that these canals were poorly filled and invariably the seat of infection. Knowing this to be on record and believing that this test was misleading in this respect, it was thought that the explanation might be found in the material used, and the pictures show that the majority of the good fillings in the smallest roots and apical thirds were made where chlora-percha was used as the solvent. This is not to be understood as saying that the same results could not be obtained by using essential oils as solvents. It would require numerous experiments to demonstrate that and there was no time to make them. But in this kind of test, G. P., as you know, when dissolved in chloroform is not adhesive, and so not being sticky, if the small canals are first dried and saturated with chloroform, chlora-percha can be pumped into the smallest canals, the dry tooth and plaster absorbing the volatile menstrum and a near dentist can make a good filling. Explain experiments No. 3, 4 and 5; chlora-percha fillings. What could be accomplished in a freshly extracted tooth, experimented on in the same manner, I do not know. Two dry central incisors were imbedded in plaster, canals enlarged the same size, and canal points made of temp stopping to fit same (stop using temp stopping). Canal in No. 1 was flooded with chloroform, canal point introduced, hot air blast applied and filling condensed with cold canal pluggers. Results very good. Canal in No. 2 was saturated with eucalyptol, gutta percha solution, and manipulated same as in No. 1, Results, filling very porous but reaches apex. And this led me to infer that if an essential oil be used as the solvent, the filling material becomes sticky, difficult to pack and the evaporation of the oily ingredient slow of accomplishment. After the operation is completed this oil is absorbed and the filling not homogeneous.

In No. 8 canal was saturated with oil of cajeput for one hour, then eucalyptol-gutta-percha solution applied and canal point introduced and condensed at No. 2. Results, a fright. I do not draw any conclusions because the technique may have been faulty. I merely present it as results accruing from tests made as described.

No. 7 is a chlora-percha pulp canal filling made in the mouth of six years' standing; comfortable when extracted. No. 8, root filling made in mouth, odor of essential oils when examined. The gentleman who made those fillings should be in attendance here tonight.

I wish to thank the essayist for what he has personally done for me, not that you called me one of Dr. Crouse's "chumps," but you have aroused my interest in this subject, and I intend to find out some things about this root canal filling business that I should have known long ago. You are to be complimented because I am certain no dentist could witness this demonstration tonight without causing him to think, and when you cause a man to think, you generally cause him to do things.

If you do not agree with me that the faulty method of conducting this test and the unwise selection of filling materials employed in meeting the unnatural conditions, does not explain many of the failures, then the cause must be found in paraphrasing that verse in Mark's Gospel, of the learned professors, "many are called but few are chosen."

Dr. Fred W. Gethro, Chicago:

Before discussing this valuable essay of Dr. Hanaford's I want to pay my compliments to him for his successful efforts for I have some little conception of the amount of work involved in an undertaking of this kind. Few of us realize the enormous amount of time and labor necessary to work of this nature.

More than 100 teeth were sent to various dentists in the state and it is to be regretted that only 50 per cent of these operators could find opportunity to make these test fillings. The men that placed these fillings will get the greatest amount of good from these experiments. A good man will always welcome just criticism, for just criticism will spur him on to higher and better efforts.

The results of these experimental root fillings are presented for our careful criticism. Let us criticise them without reserve. I am sure that every man who has made a test filling will be more than glad to learn of the results of his efforts.

I most heartily agree with the essayist when he says that the permanency of much of our work depends upon the mechanical perfection of root fillings. My judgment is that the author has been very liberal when he states that there are about a dozen good root fillings out of the fifty-two returned, for I looked these teeth over carefully, and I must say that I am compelled to put the number lower than twelve. However, we must take into consideration the fact that these specimens are not only dry teeth, but many of them are among the most difficult teeth to successfully treat, and fortunately, we are seldom called upon to treat some of these teeth. I want to just refer to a few cases.

In specimen No. 2 there is a broken broach not mentioned by the essayist.

I am inclined to think that in specimen No. 3 the apical third of this root has not been filled. It strikes me that the white root filling is a little deceptive and I believe that part of this pulp is still in the tooth, although the picture will probably indicate that this apical third of the dried pulp is part of the root filling.

In looking over specimen No. 4, I think there is evidently some mistake, for I would say that it was a pretty good filling.

In looking over specimen No. 7, there is only one buccal root exposed and I believe that this one is not filled within three millimeters of the apex. There is also a piece of broken broach in this root not mentioned by the essayist.

Specimen No. 9 I believe presents another example of the pulp not having been removed.

Specimen No. 11 calls for a little extra attention. This is a lower cuspid in which there is a division of the canals. This is not common and I believe that many operators would fail on this if they were called upon to place a root filling in a similar tooth. I believe the lower front teeth present the greatest difficulties in root treatment and it is fortunate for us that we are seldom called on to treat these lower incisors and cuspids.

In specimen No. 18 I would criticise the size of the cavity through which the operator endeavored to work. This cavity is too small to expect favorable results.

I am of the opinion that specimen No. 23 will show something in this canal beyond the broken broach which might be taken for the root canal filling, while in reality I believe it is the dried pulp.

In specimen No. 34 there is a remaining piece of the pulp which is certainly five millimeters long.

In specimen No. 37 there is a division of the mesio-buccal canal and it is very evident that the operator found only one of these.

I am of the opinion that the root filling in specimen No. 38 does not reach the apex. I realize that time did not permit Dr. Hanaford to go into any of the details of the technic of root canal preparation and root filling but it seems important to me that something be said along the line of methods of technic for removing pulps and making good root fillings. In order to make a good root filling, it is absolutely necessary that the contents of the pulp canal be thoroughly removed. Generally speaking, I know of no method that will do the work as effectively as the barbed broach. There are several important things in the technic of the barbed broach that must never be forgotten.

Unless used with great care and with recognition of its weaknesses, the barbed broach is the most dangerous instrument the dentist is called upon to use. When used properly this instrument becomes one of the most valuable instruments in the dentist's outfit. With very few exceptions, it can be stated that a barbed broach should never be rotated. Probably some of the older men in the society will remember this story.—

Some years ago a local dental society in our State was not prospering very well. They never seemed to have a very good attendance. The papers did not seem to attract many of the members. On one occasion the subject to be discussed was "How to remove broken broaches from root canals." It is said that every member of the society was present at this meeting. There are many small root canals where a barbed broach will not enter and in these cases the best method to pursue is to enter a canal by means of a small smooth broach. Very frequently the barbed broach can be used after the canal has been entered by the smooth broach. If the canal is still too small for the finest barbed broach, the smooth broach can be made into a cutting broach by rotating it between two files. The little fine cuttings left on the broach as the result of this rotation between the files will make an effective cutting instrument for these small tortuous canals. This kind of broach can be rotated in the canal with comparative safety. After this broach has entered and enlarged the canal, the small barbed broach should then be used. This barbed broach may be carried as far as it will go and then withdrawn but not rotated. The barbs on a barbed broach are so cut that each time the broach is withdrawn, it enlarges the canal slightly. This enlarging can be continued until the desired size of canal is reached.

After the canal is thoroughly cleaned and ready for root filling, eucalyptus or cajeput should always be used. Eucalyptus acts as a lubricant, and solvent, causing the gutta percha to adhere to the walls. It also displaces moisture because eucalyptus has a greater affinity for the surface of the canal of the tooth than the moisture.

A root canal plugger should be selected that will reach to within two or three millimeters of the apex. I am sure that many of our failures in root fillings are the result of using gutta-percha points that are not of proper size for the given case. The size of the point of the plugger selected for a certain canal, should govern the size of the gutta-percha point.

Another point worth mentioning is that the length of the gutta-percha point should not be more than about three millimeters. We usually find that the root canals enlarge as we approach the gingival and it is necessary to use larger root canal pluggers, as we proceed with the root filling. If the root canal plugger is too small for a given part of the canal, it punctures the gutta-percha instead of packing it.

In closing, I want to again thank the essayist for his valuable contribution, for I consider this one of the most interesting papers presented at this meeting.

Dr. J. P. Buckley, of Chicago:

The two men who have thus far discussed this most excellent paper have confined their remarks, especially the last one, to the technique of the operation. What little I will have to say will be devoted to a general discussion of the subject. Inasmuch as Dr. Kyner admitted that No. 32 was his root filling, I am going to admit that No. 3 was mine. Now I had supposed that I had a fairly good root filling until Dr. Gethro got through with it. Dr. Hanaford said these canals were filled to the end, but that the larger portion of the distal canal of the molar seemed to be porous, and I was going to try to make him believe that he drew the gutta-percha away from the side of the larger canal with his file, but I think I will let it go as it is.

Now I agree with Dr. Kyner in that this test is not a fair one, because the conditions did not simulate those which we find in the mouth. If there was a piece of dry pulp left in the distal canal in No. 3, I want to assure you that it was no fault of mine. That tooth was a tooth extracted without any cavity and with a live pulp. The pulp has all shriveled up, and if I had dared to use the acids and caustics in the mouth that I used in trying to remove that dry and shriveled up pulp, my patient would have had a severe case of acute, non-septic toe-nailitis. (Laughter.) I was afraid that the plaster and box in which the root was encased would be in such a condition that Dr. Hanaford could not remove the tooth from the box. I am optomistic enought to believe that the fillings that are being inserted in the roots of teeth by the average dental operator today are better than you would be led to believe by these pictures on the screen. I told Dr. Hanaford last night when we came down on the train that it had been a long time since I had been so sorry as I was after reading the statement that in ten years time no progress had been made in this important operation. I was disappointed to find that only two or three out of fifty-two were filled with a preparation containing formaldehyde, because I know to my sorrow that there is more than that percentage of dentists in the great State of Illinois, and all over this country that are filling root canals with these celebrated abscess cures, forcing the remedy with gutta percha many times through the apex of the root, as a result of which many a tooth has had to be extracted. The action of formaldehyde on the gutta percha, as on normal tissues, is to make it hard, and if you have ever extracted a tooth the root of which has been filled with any of these preparations containing formaldehyde you have found that it looked as if you had forced a wooden tooth-pick through the end. The gutta percha is just as hard, and will break as easily as a wooden tooth-pick. I like to have something in my root canal filling which acts as a disinfectant, but I never want to believe that I need it there to preserve the tissue which I leave in the root.

Not long since I was filling the root of a molar tooth of one of the best dentists of the city, and after I was through he looked up at me and said: "I have just one criticism to make of your technique." And, having a great deal of confidence in this gentleman I asked him was it was. He said: "You are afraid that you are going to leave a little of the pulp tissue, and as a result you go through the end of the root." Now I want to remove all of the pulp tissue, but I don't want to remove any of the tissue beyond the end of the root. I did not suppose I could do it in this case, but I did. So I profited in my technique of filling root canals by the honest criticism of this gentleman, a man that I hope will get into the discussion before the evening is over.

I want to thank Dr. Hanaford for the great amount of work entailed in going through these preparations, and in accomplishing these results.

Dr. J. N. Crouse of Chicago:

I filled the tooth that Dr. Hanaford sent me, and as the material I used must be kept wet to keep it from shrinking I put it in a bottle and ordered it shipped from the factory, but it was overlooked.

I fill no teeth with gutta percha, or any material that I have to push into position, as it is liable to get air ahead of it, and injure the peridental membrane. As you know, probably, I use oxy-chloride of zinc, and followed with a little point of gold on a broach, with a little shellac, and then heat it enough to soften the shellac, leaving the gold there. I think there is a gentleman in this room who worked for me a number of years, and I heard of his saying to somebody else that in those years he never had seen an alveolar abscess from the roots I had filled. I don't know whether I am filling roots as well as I think I am, but I want to know now. When I adopted this plan I abandoned the plan I had used because I felt it was defective. If you use some of the essential oils and follow with gutta percha the two do not unite well. I would rather have it absolutely dry. I also agree with some of the criticisms here as to filling the root canal in the mouth. I will get a better idea of the condition of the pulp canal than by having it buried in plaster paris. I would much rather have nothing at all in the root than to break through.

I am the gentleman that Dr. Buckley described. I know he went through the end, and the tooth hasn't been comfortable since. I would rather leave some pulp in there. I think it is a mistake to enlarge the pulp canals with barbed broaches. I think the natural surface of the root canal is the best surface to fill against, and it is better than to file it out. I try to carry the oxy-chlorid of zinc up there and leave it, and it is mighty rare that I have a sore tooth when I fill a root.

C. P. Pruyn, Chicago:

It was at my request that this series of experiments was made. Ten years ago when Dr. Hanaford made a similar series of experiments

I was greatly interested in them, and when the time came around for this meeting my opinion was asked about what it would be wise to present, and I suggested that we have the same thing, to see if there would be any improvement shown in our root canal filling during the last decade. I was greatly surprised and chagrined to think that during the ten years no improvement has been made. I think I know the tooth I filled. I thought I had an easy case of a bicuspid with a canal easy of access, but when it showed up on the screen it looked mighty poor. You may say these experiments made out of the mouth were much unlike the actual work done in the mouth, and cannot be compared, but in reply I would say can you suggest any better method of demonstrating than this shown tonight? If by this means Dr. Hanaford has shown up our imperfections perhaps he has done more good than he could have done in any other way. Why small canals are so much better filled than the large ones is a mystery. It may be that the capillary attraction carries up the liquid into the small canals better. To do the best work I find that I must have a sufficiently large opening in the crown to get direct access to the canal. I enlarge the canals mechanically and with H_2SO_4.

During the last decade we have made a great many bridges, and how under the sun those abutments can do so well with roots improperly filled I do not know. The probability is that at least 50 per cent of all the roots we fill are imperfectly done. A man who can invent something better than we have today will have a halo over his head and we will all fall down and worship him.

We are greatly indebted to Dr. Hanaford for the work he has done in this subject.

Dr. M. R. Harned, of Rockford:

I did not expect to be called upon, and I did not prepare one of the canals. It is certainly very interesting to me to find how defective are the fillings of root canals by the dentists of the State of Illinois. The fact that we have made no progress in the last ten years is appalling; however, it is a fact that these conditions are not true to the conditions as we find them in the mouth. You will probably never find an old pulp such as Dr. Buckley described. It is practically impossible to remove the old pulps from dry teeth when they are in that condition. The lesson that comes out of this to me is that as thorough as we think we are, yet we are fallible in this respect, and I am grateful to Dr. Hanaford for calling our attention to this particular phase of our defectiveness, and again I am going to resolve to do better, along with the rest of you.

Dr. Hanaford (closing the discussion):

It has been said that the conditions in these experiments were altogether different from what we find in the mouth, and that portions of dry pulp are almost impossible to remove, but that is not the point. They did not fill the canals after they got the pulps out. The holes were there. Whether the dry condition of these teeth furnishes a reasonable explanation for results as shown, I leave you to judge, only reminding you that it is not so long ago that we were endeavoring by any and all means to get just as near to that condition as possible for our operations in the mouth. I thank you.

DISCUSSION OF DR. A. BROM ALLEN'S PAPER, "IMPACTED LOWER THIRD MOLARS."

Dr. J. P. Luthringer, Peoria.

A paper of this character is always timely and cannot fail to do good if the several points made therein are properly pondered over. When there is perfect accord with what the essayist has presented, little remains to be discussed; hence, any remarks offered must take the form of concurrence, and elaboration of the salient points.

Dr. Allen has clearly set forth the difficulties involved in removing impacted lower third molars, supplementing it with a practical mode of procedure for their removal and subsequent treatment. It has often occurred to me that many of us are in the habit of regarding too lightly the responsibility which devolves upon us in many of the operations that come to us. This may be very well so long as everything goes smoothly, but when we get into trouble our cogitations present a picture of the safeguards we should have employed, when it is too late.

The so-called Physic's forceps again has been condemned, and justly so. Unquestionably it is a dangerous instrument, even in the hands of the most skillful. In its application something must give way and it is not always the tooth. If you, perchance, were born under a lucky star, mayhap the forceps will very accommodatingly break, but if neither the tooth nor the forceps yield a nasty fracture of the mandible at the angle will serve to make of you a "night owl" and an "early bird" rolled into one.

Another aspect of our profession which was touched upon only lightly, relates to the business side—the fee question. It is no longer necessary to speak apologetically when referring to this important phase of our endeavors. From below up to the average man, life, if it mean anything, resolves itself into a struggle to satisfy present needs and also to lay a surplus to carry us comfortably in the journey down the hill. Every dentist has a right to demand that his profession yield him this moiety. Recent literature in a number of our magazines tends to the belief that the majority of us are not reaping that moiety. And why? Simply because there is a lack of backbone to demand a fair compensation for our services. I believe there is more truth in the statement than most of us are willing to admit, even to ourselves. At every opportunity we should aim to stiffen up the vertebral column.

It is neither fair nor just for one man to place an estimate on the services of a professional brother with himself as a standard. Rarely can one, in contemplating a result, adequately measure the forces necessary to produce that result. Since we can only approximate, it is better not to hazard a guess, but hold up the hands of one who is asking a professional fee for professional responsibility and skill.

The essayist exhorts us to be honest with our patients in forecasting what may be expected as regards soreness, etc., following extraction. I believe this trait should be more fully developed as it pertains to the daily round of operations in general practice. Prognosis, if judiciously made and properly qualified for self-protection is often called for in many operations, and we should volunteer it. Besides protecting you it prepares your patient for what might otherwise prove the unexpected. If the worst happens your judgment is confirmed; if it does not happen you are not blamed, moreover your patient will rejoice that his case proved an exception to the rule.

The skiagraph idea seems to me to be a good one in difficult cases. It is a step in the right direction and savors of the scientific and common sense methods. The idea may provoke amusement from some as being superfluous, but we must remember Dr. Allen referred to difficult cases of impaction, and anything that can be done to enlighten the operator as to the conditions confronting him will thereby enable him to work intelligently and at the same time safeguard himself and patient. He has reduced the liability to mishap to the minimum. You may operate on ninety-nine successfully without it, but the hundredth might make the time, trouble and expense seem trifling.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

THE NECESSITY FOR BETTER ORGANIZATION IN THE DENTAL PROFESSION.

Some day the profession will receive a jolt that will stir the members out of their lethargy and show them the necessity for better organization in order to protect their rights. It is true that we are better organized today than we formerly were, but this is mostly confined to several of the States, and is not as general as it should be. The profession would no longer stand still and submit to the injustice practiced upon it by the old Rubber Company, and yet we are likely to have abuses heaped upon us in various directions unless we band ourselves together and stand loyally shoulder to shoulder in a national way, as some of the States are now doing individually.

Some years ago Dr. J. Leon Williams of London made a trip to New York to read a paper on the advantages of a better organization of the profession, pointing out that many benefits might come from it, one of which was the fact that if we were well organized with proper committees we could study the characteristics of the various materials we use in our work and know without bias the virtues and limitations of those things offered us for sale, and which we now accept largely on faith.

This and many other things might be formulated and systematized, and the profession's interests subserved by a representative organization. Legislation whether state or national could be watched. Good legislation looking to the welfare of the people could be fostered, while pernicious legislation would be defeated. Some day unless we are watchful a bill will be put through Congress that will cause consternation in our ranks: In fact, it may be said in passing, that such a bill was actually introduced in the Senate at the last session, but with that we are not dealing at this time.

What we need and what we must have is an organized profession so that it shall no longer be possible to say: "No matter what kind of a patent you hold against the dental profession—whether worthless or not—you can exact royalty because the profession will not pull together to properly contest any claim." The profession must pull together from this time forward, and it must foster only those measures which are for the benefit of the people we serve.

But no movement will be permanently effective unless it be a national movement. The logical source of such a movement should be the National Dental Association, but this at the present time is numerically too small to be truly representative of the entire profession. The National must be enlarged or it must fail in its mission of standing sponsor for the highest ideals of American dentistry. The only way of materially and permanently enlarging the National is along the lines of the American Medical Association—making membership in State organizations constitute membership in the National. We believe that Dr. William Carr recommended this plan years ago when he was President and frequently since that the matter has been brought up but with no definite results.

If after due deliberation this plan does not seem feasible then some other kind of an organization must be formed to band the profession together so that numerically and financially we shall be in a position to accomplish a greater good than ever before in the scientific development of our profession, and also that we may force recognition of our rights whenever those rights are menaced. If the profession contents itself in resting supinely and sedately oblivious to its possibilities in the way of adequate organization it will one day be rudely roused from its slumbers, and then there will be a futile scramble to lock the stable doors after the horse has long since been stolen.

BOOK REVIEWS.

THE DENTAL DIRECTORY, 1910.

Containing the names and addresses of all registered practitioners, with description, date of qualification, and hospitals and schools where educated, practicing in the United Kingdom, Channel Islands and Colonies abroad. Published by John Bale, Sons & Danielson, London, England.

CORRESPONDENCE.

Letter From Dr. Kells.

New Orleans, July, 1910.

Dr. C. N. Johnson,
Editor Dental Review.

My Dear Doctor:—

Your June number was received and with great interest did I read your paper, "Selection of Filling Materials," etc., and its discussion.

I regret exceedingly not having been present at the meeting and been given the opportunity to applaud to the echo nearly all your sentiments and especially your endorsement of gold foil fillings. For when we hear men of prominence openly boast of having given up such work and when we see some of the younger men in practice who have never put in a gold foil filling since leaving college, I can but feel that such a paper from you is very timely.

Not long since I was asked if I still used gold foil, and replying in the affirmative gave as my reasons that I frequently see such fillings inserted by my father and other "old timers" over forty years ago. That I have such fillings in my own teeth which were put in place more than forty years ago and still are working "over time." That I still see some such fillings put in by myself in the teeth of some of my relatives inserted from twenty-eight to thirty years ago and still preserving the teeth.

Again many cavities can be filled with foil in much less time, and with much less sacrifice of tooth structure than when inlays are used.

These are some of the reasons for my still using gold foil.

Upon the subject of amalgam, I must admit I am a disciple of Dr. Root's. It has inspired me with a certain amount of enthusiasm and a great deal of respect for I know that in a large class of cavities I can insert amalgam fillings which will prove more durable than gold.

Take, for instance, the first molars and the bicuspids which erupt with fissures in their enamel. Such cavities I frequently fill with almalgam and they last as many years as gold would months. It is regular practice to push the gum away from a cavity in the buccal surface of a lower molar before the tooth is half erupted and fill with amalgam. Moreover, I have refilled with amalgam very many such cavities which had been filled by other dentists with gold, and which failed almost immediately.

One of my duties to a new patient when she (it is usually the mother) brings me in her children under these conditions is to give her a lecture upon the undesirability of the use of gold under such conditions, and I positively refuse to accept the patient unless I can use just exactly what filling material I consider best without any question or discussion. Of course, Dr. Ottolengui was speaking in jest when he referred to the requiring of four hours for the insertion of an amalgam filling—or else Dr. Root was right.

As a matter of fact, I always take the time in a second sitting to polish an amalgam filling. The fees I receive for such work are comparatively more renumerative than I receive for gold or porcelain. And that does not lessen my respect for the material in the least.

And now I come to the surprise of Dr. Johnson's excellent paper and that is, his not mentioning the use of tin-and-gold, and gold-and-amalgam in combination.

Nothing has given me more satisfaction than these combinations. Take for example the cavities described by Dr. Taggart. He says he would fill such by making two inlays—and so he would, for he has the ability. But he should not expect ordinary dentists to do the same, and I am free to admit that I would not attempt it. I do not consider inlays adapted to such cavities nor gold foil either, for the inherent difficulties frequently presenting, prevent the packing of gold foil "perfectly" and great difficulty presents in "perfectly" finishing such a filling under the gum after it is inserted.

According to the case, the gingival portion (possibly a third or half) of the proximal cavity in a molar would be filled with amalgam, which, under ordinary circumstances, can be well done.

At a subsequent sitting this is "perfectly" (?) finished and the rest of the cavity filled with foil.

In other cases, the lingual half or two-thirds of the proximal cavity and the cavity in the occlusal surface are filled with amalgam, and at a subsequent sitting the operation completed with gold foil.

In the latter cases, the portion of the cavity to be filled with gold is filled with gutta-percha *before* the amalgam is packed. Then at the following sitting when this is removed, which it readily is, a nice clean cavity is found about ready for the gold.

The advantages of this combination are three fold:

First.—The work is facilitated, and therefore we are more assured of a well executed filling.

Second.—It divides a long sitting which is apt to render the patient restless and which the essayist says he will not stand for.

Third.—It will probably prove more durable than all gold fillings under such conditions.

At times with bicuspids and molars, if amalgam is not indicated, gold-and-tin packed at the cervical wall, and gold used for the completion of the operation has given me most excellent results.

Some years ago the filling of a cavity with oxyphosphate cement and then while this was still soft "squashing"into it very soft amalgam was advocated, but latterly this has not been heard of.

The method as described, I must admit, never did appeal to me, but for several years I have *occasionally done* in exceptional cases. as follows and with satisfactory results.

The amalgam is mixed as usual, then a small mix of cement about of the consistency for inlay work is quickly made and the walls of the cavity smeared with it.

A large piece of amalgam is then placed in the center of the cavity and worked quickly from the center to the bottom and around the walls of the cavity with ball burnishers thus squeezing out all of the cement possible. The surplus is removed from the margins, whereupon the filling is completed with amalgam in the usual manner.

I am greatly astonished to hear your essayist say "porcelain inlays seem to have waned" as in my own practice porcelain holds, if anything, a much more satisfactory position today than it has done in the past. Possibly this is due to the fact that its use has always been backed by conservative judgment.

Again experience has taught me that for inlays of all kinds, depth of the cavities is absolutely necessary for their success, and for that very reason many gingival cavities cannot be properly prepared for them, *by me,* without endangering the vitality of the pulp.

Therefore, I no longer insert mere veneers of porcelain which always prove short lived.

And now I would take most strenuous exception to one of Dr.

Van Woert's statements. He says "probably I have not inserted a gold filling for between seven and eight years, at the same time I never have been as busy in my office work which, I think, is a proof that I am serving the public very much better under the present than under the old method."

Now, gentlemen, while Dr. Van Woert is undoubtedly most sincere in this statement, I, myself, have my doubts about it.

Not that he is not "busier than ever," for, of course, that is a matter of fact based upon his books. But it is to the statement that he must be "serving the public better," which is an opinion only and cannot be proven.

Any man who has by twenty-five or thirty years of good gold foil work gained the confidence of the public might change to some slightly inferior method and still travel upon his reputation for a long time.

Take myself, for example. Suppose I were to discard gold foil fillings from tonight. Tomorrow morning a patient comes in and, instead of inserting a gold foil filling, as I would have done today, I merely state that I will put in a modern (?) gold inlay instead of an old-fashioned filling hammered in!

My patient considers me progressive and is all the better satisfied. She does not know that I could put in a good gold foil filling in less time. She does not know (fortunately) that the foil filling would probably last longer. Happily she does not know how much good tooth structure must be vandalized for the inlay—which would be unnecessary for the foil filling.

How should she know all this? So she would become one of the public who believes it is being "served better than of old." So much for confidence.

For myself I believe Dr. Van Woert is mistaken upon this point, but I may be wrong.

There are two statements of Dr. Ottolengui's which should not be allowed to go uncontroverted. The one that porcelain is a non-conductor of heat. This is an absolutely erroneous belief as its conductivity is readily susceptible of proof.

Again he says that gutta-percha fillings always leak. This, I *believe,* is an error. Given a cavity properly prepared—maintained absolutely dry during the insertion of the filling—the gutta-percha heated to the correct temperature and packed, a small piece at a time, using an instrument *in each hand* when possible, giving each step of the operation as much care as is bestowed upon a gold filling and I believe a perfectly tight filling is the result and under it recurrent decay will not take place as long as it remains intact. I may be wrong.

Now, in conclusion, I would strive to impress upon his readers two of the cardinal points of Dr. Johnson's splendid paper:

Speaking of gold fillings, he says: "And I also believe that where this fact is lost sight of in the conduct of a practice there is something tangible lost which militates against the greatest ultimate benefit to the patient." And, "the blind following of any one method to the exclusion of all others is not conducive to a symmetrical development of the dentist himself, nor to the best interest of the patients whom he is called upon to serve."

Respectfully,

C. EDMUND KELLS, JR.

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Bleaching Pink Rubber:—Bleaching pink rubber may be accomplished by focusing upon it the rays of the magnifying glass, taking care, however, not to burn it. This method will produce a beautiful bleached pink rubber in about five minutes.—C. C. Markey, Chicago.

Location of Teeth Seldom an Excuse for Extraction:—In the practice of modern orthodontia, the location of the teeth is seldom an excuse for extraction, as the teeth can usually be brought into alignment regardless of their position in the jaws; consequently, any one of the six anterior teeth is seldom sacrificed, as better results may be obtained both from the viewpoint of appearance and occlusion with these teeth in position.—T. L. Grisamore, Chicago.

All-Porcelain Crowns:—The weak portion of an all-porcelain crown or dummy is the lingual portion and where the bite is very short they should not be employed. In the majority of cases, however, the bite is of sufficient length to warrant their use and unless the bite is of rather extreme length, the lingual of these all-porcelain teeth should be supported by letting the metal come up well around this surface. This applies especially to dummies in bridgework.—R. E. MacBoyle, Chicago.

A Simple Thing: —So many times we see a patient give evidence of pain when the pellet of cotton is dipped in alcohol and then placed in a sensitive cavity, we all know the reason. Now if the same pellet after saturating with alcohol is passed through the gas flame on the bracket table and allowed to burn just an instant, then put out, it warms the alcohol and does not char the cotton, injure the pliers or materially decrease the quantity of alcohol and the results are much better.—James E. Dolson, Evanston.

To Cleanse Barbed Broaches:—Lay broach on a wooden block having a plane surface and use a stiff bristle brush moistened in alcohol or water; brushing "with" the barbs (not against them), will quickly dislodge all debris and will not injure the barbs. They may then be sterilized by boiling, or disinfected by any of the ordinary disinfecting solutions, and placed in a clean box with a closely fitting cover, and are then ready for immediate use when needed.—P. G. Puterbaugh.

Make Your Own Inlay Investment:—An excellent investment material is made by: One part plaster paris, one part fine powdered silex, one part hard coal ashes. The silex should be very fine; and the hard coal ashes should be sifted very fine, select ashes that are free from unburnt particles of coal, measure by bulk. A good way to mix this is by putting in a stiff paper bag and shake it like you would a mixture in a bottle. I have used every investment that I have heard of but find this the best in every respect.—W. F. Reber.

The Subject of Syphilis:—Is one that is of interest to both medical and dental practitioners alike, for during the course of syphilis at some time or another it is almost certain to manifest itself by symptoms in the oral cavity. Indeed, the symptoms as they appear in the mouth may be the first for which the person affected seeks relief or advice, either from his physician or dentist, and a certain degree of familiarity with the clinical appearances of the disease, as it presents itself in the oral cavity, at least, should be the possession of every dentist. I trust the time is not far distant when every course in dental surgery will include an exposition of the subject of syphilis in its relation to dentistry.—O. H. Foerster, Milwaukee, Wis.

The Requisites of a Successful Crown Are:—A good adaptation to root with reference to peripheral continuity and root-end apposition in dowel crowns, freedom from peridental impingement, close contact with approximating teeth, at the same time preserving proper interproximal space gingivally, correct occlusion, anatomical form and alignment with adjacent teeth, adequate strength and compliance with the cosmetic requirements. The same may be said of the bridge, with the additional observance of the general rule that the number of dummies supplied should not exceed the number of abutments and piers. Assuming, of course, that the preliminary requirements of healthful conditions have been established.—F. E. Roach, Chicago.

Little Instruction Is Given in Economics to the Student in Dentistry:—Little instruction is given in economics to the student in dentistry while preparing for his life work. A very few schools do attempt training in this useful branch, but the number is so few that it is almost a negligible quantity. A student should not be turned out to commence his life work without giving him knowledge of practice building and some instruction as to a scientific method of making charges for his services. Few dentists ever fully learn the latter. To be highly qualified to practice one's profession, and at the same time have a financial sense, does not, in my opinion, necessarily constitute a dual existence. The two combined give the superior man. They are a combination forming, when properly adjusted, a perfect whole. Continuous growth, mentally, demands remuneration to give opportunity for better facilities for this growth.—T. L. Gilmer, Chicago.

MEMORANDA.

A NEW WORK ON ORAL SURGERY.

Dr. Truman W. Brophy is now at work on a book on Oral Surgery, which will be issued in the fall. Dr. Brophy has promised for years to issue a work on this subject and now has the manuscript so well in hand that its early publication is assured.

NEW YORK ALUMNI ASSOCIATION, XI PSI PHI FRATERNITY.

The annual fall meeting and election of officers of the New York Alumni Association, Xi Psi Phi Fraternity, will be held at Healy's, Columbus avenue and Sixty-sixth street, New York City, at 8 p. m., Wednesday, October 12th, 1910. Every Xi Psi Phi Alumnus residing in or about New York City is urged and expected to be present.

SOUTHERN ILLINOIS DENTAL SOCIETY.

The Southern Illinois Dental Society are preparing to celebrate their 25th anniversary, at Chester Illinois, October 25th and 26th, 1910. The executive committee is now at work on the program and have promised to have the best in the history of the society. All members of the dental profession in Southern Illinois and all members in the surrounding territory are requested to remember the date and so arrange that they may be in attendance. The program will be printed in due time, but at this early date we are safe in saying that there will be "something doing" all of the time.

RECENT PATENTS OF INTEREST TO DENTISTS.

953022. Dental-spray attachment for handpieces, Andrew F. Dollin and E. W. Couper, San Francisco, Cal.
953042. Dental hot-air appliance, Walter Lamb, Hanover, Pa.
953072. Tooth-swage, Theodore C. Trigger, St. Thomas, Ont., Canada.
953702. Artificial tooth, Edward P. Off, Philadelphia, Pa.
955320. Dentimeter, Agnes D. Cloud, New York, N. Y.
955143. Dental lavatory, Thomas Dunbar, Chicago, Ill.
955484. Electrical dental engine, John V. Trenaman, Newark, N. J.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall building, Washington, D. C.

MADISON COUNTY DISTRICT DENTAL SOCIETY.

RESOLUTIONS.

An informal meeting of the Madison County District Dental Society was held in the Illini Hotel, Alton, Friday evening, July 1, 1910, immediately following the burial of Dr. Charles B. Rohland, and by general consent, President Burroughs was requested to appoint a committee to express the sentiments of the society towards the deceased.

The very intimate relations existing between Dr. Charles B. Rohland and this society, he being its first president and chief organizer, makes it most fitting that we record our appreciation of his wise counsel. his unusual abilities as a dentist, his great personal interest in this and other dental societies of which he was a member, his unselfishness, his pleasant smile and glad hand, and his possession of those mental and moral traits which make up a strong and lovable character; these attributes being such prominent features in his life that his "going out" leaves a vacancy that cannot be filled, and an influence that cannot be lost.

The beautiful flowers, wreathed by loving hands, that covered his grave on that July afternoon will soon wither and fade. Not so the tender memories wrought by our acquaintance and association with him,—for the longer we knew the more we admired and loved this man, who in his professional and social life endeared and fastened himself to our hearts as with hooks of steel.

We extend our deepest sympathy to his widow and to his daughter, and commend them to "Him who doth all things well."

A copy of the foregoing we forward to the family and to the dental journals, and record the same on our minutes.

T. W. Pritchett,
J. M. Barcus,
W. E. Holland,
Committee.

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THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, OCTOBER, 1910. No. 10

THE ANALYSIS, CLINICAL COURSE AND PRESENT SURGICAL TREATMENT OF TRIFACIAL NEURALGIA, OR TIC DOULOUREUX.*

BY JOHN B. MURPHY, M. D., CHICAGO.

In considering this subject, let us ask ourselves the question, What do we mean by trifacial neuralgia? We mean a recurrent, spasmodic, periodic pain that acts differently from all other pains in the body except the neuralgias of amputated stumps. It affects a nerve that has a peculiar anatomic construction; that has a genetic force not equaled by any other nerve in the body. Why trifacial neuralgia is present is not at all so easily answered, nor is the true pathology of trifacial neuralgia clearly understood. What the etiologic factor may be in many instances is well known.

In order that we may have a clear idea of trifacial neuralgia, let us talk a few minutes about the trifacial nerve, its anatomic construction, its situation, the area which it supplies with sensation, its ganglion, and its sensory root, which concerns us tonight. When you look over that face (referring to the chart) and take that blue line and the enormous range which that covers, all of it supplied by one nerve, all leading to one ganglion, and all having but a small sensory root, what do you understand by this nerve? What is it? The neurone theory. The single neurone theory is the working theory for surgeons and dentists. Whether it is correct or not, physiologically it matters little; also from a practical standpoint, it fits into all of the phases and nerve diseases and nerve lesions as they concern the dentist and the surgeon. The neurone is a cell body having an axon and having telodendrous leading from the axon and the peripheral sensory body. The axon is made up of three layers, an axis cylinder, which is the conducting wire, this irregular medullary sheath, which is an insulated sheath, and a thin extra layer, called the neurilemma, which is the regenerating sheath of the nerve. Now, let us see if we have that clear in our minds. When the peripheral nerve ending is disturbed, it is transmitted along the axis cylinder to the central cell body which receives it. That central cell body, with its nucleus and nucleolus, is the nutrient cell body of the entire axon, and if you cut off any part of that for any distance at the place where you divide it, it dies in consonance with the well-known biologic law, namely, that when you separate any portion of a cell from its nucleus, the peripheral portion always dies.

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*A lecture delivered before the Chicago Odontographic Society, May 10, 1910.

We have in the body axons of three different kinds. We have the axon with an axis cylinder, which has a myelin sheath and no neurilemma. We have, again, axons with no medullary sheath, but a neurilemma, and no insulating sheath. Again we have axons with axis cylinder myelin sheath and neurilemma. I want you to keep these three kinds of axons clearly in mind. We will begin with the simple one. Here (illustrating) is an axon without any insulating sheath, and it is found only in the sympathetic system. The reason why impluses are transferred from one wire to another is because the sympathetic axons have no insulating sheath from one communicating line to another. But they have a neurilemma. The axis cylinder is the transmitting portion, and the myelin sheath is the insulating portion, but the regenerating portion is the neurilemma. An axon that has no neurilemma is incapable of regeneration. Let us go back to this variety. Where do you get that variety? In the nerves of special sense only, and particularly the optic. It is made up of an axon that has an axis cylinder and an insulating sheath, but no neurilemma. It is, therefore, incapable of ever regenerating once it is divided. It is dead, and dead forever.

The next type is the common cerebrospinal axon, which is common to all of the cranial and spinal nerves except the nerves of special sense. All of the nerves of special sense have no neurilemma, and all are incapable of regeneration. All of the cerebrospinal nerves have a neurilemma and are all capable of regeneration under favorable circumstances.

Now, we come to the part that concerns the trifacial nerve, and that is its degree of ability to regenerate. A nerve is capable of regenerating in proportion to the size of its ganglion. You have in the trifacial nerve the largest sensory ganglion in the body. You have in the trifacial nerve a special potency for regeneration that overcomes almost every obstacle we can interpose as long as we do not destroy the ganglion cell body. And that is why trifacial neuralgia is recurrent. That is why the nerve regenerates, and that is why this nerve has become the object of the attention of the dentist, and the surgeon particularly. It has great power of regeneration. If the trifacial nerve were like the optic nerve, once it was cut, that would settle the neuralgia. I will make another statement as the result of considerable experience, and that is, there is never a recurrence of the pain until the nerve is regenerated. It took a long time to find that out. You will remember that we had some magnificent pathologic specimens showing that the lesion was a central ganglionic nerve lesion, but they were not supported by subsequent investigations, and whether they ever have been or not, it does not concern us particularly at this time. The pain in these cases will not return until the nerve is regenerated and connects again with the sensory corpuscles. Now, we have a basis for starting. We have here in the trifacial nerve a nerve that regenerates faster and more persistently and to a finer completion and perfect transmission than any other nerve. If we take the remaining portion of the spinal nerves that are illustrated here, they all have ganglia on the posterior root. The trifacial nerve is identical in every particular, and it comes in to the continuation of the spinal cord into the medulla exactly the same as the other spinal nerves except its Gasserian ganglion which gives it the power of regeneration. What is it that causes the neuralgia? Many, many different things have been charged with that crime, but we can say this, that pain appears to be produced by various conditions, and that it does not appear to be permanently cured by anything except the removal of the ganglion or its sensony root. Irritations about the eye may cause trifacial neuralgia. Irritations in and about the nose may cause a larger percentage of cases of neuralgia than irritations about the eye because the nerve goes in and supplies all of the nasal mucosa, and when the lesion in the nose is removed a considerable percentage of the cases get well. And then we come to the most common factors, as we believe, namely, lesions occurring in the maxillae in the mandible, and superior maxilla. These, we believe, are the most potent etiologic factors in the production of this type of lesion. The trouble is likely to start with lesions in one or more teeth. Whether it is an infection, an irritation, or a pressure, we do not know; but the fact is that in a considerable percentage of these cases, before the neuralgia has been permanently established, if you remove the primary source of irritation, you cure the disease. In other words, the patient gets well. Again, when you take out all of the teeth with or without lesions, and mostly without lesions, it has no effect at all on the disease, and probably because there was no lesion in the teeth that produced the disease, and that the neuralgia was due to some other cause than to defective teeth. Then comes the teeth remnants that have remained in the mandible and maxilla and appear in one role or another to be etiologic factors in the production of the pain. The ones which produce apparently the least irritation of the nerves are the epithelial odontomata and the follicular odontomata. These large cysts develop and attain considerable size. One on which I operated a few days ago had an ounce and a half of fluid in it, and some of these cysts have attained colossal size, without producing any pain whatever. The patient insisted that he never had the slightest pain in his jaw.

Then comes the types of fibrous odontomata and cement odontomata which produce pain much more frequently, particularly those fibrous accumulations which form around the teeth. Again, you have the reticular type of odontoma where the root crosses and produces pain. From a surgical standpoint, they produce more neuralgia than any other type because they are connected with the sensitive elements of the teeth. Of tumors that are less likely to produce pain than the others we have the bony tumors that occur in the mandible and maxilla. We have these cement odontomata that are not connected with these bony growths, and before you can succeed in getting them out, you must chisel around and remove all of the encasing bony tissue, and allow the tumor to drop away, or the patient to drop away from the tumor. (Laughter.) The most trying lesions I have ever had to deal with have been some of these in the superior maxilla—neoplasms that do not produce much pain. In this connection I wish to mention epulis. Epulis has been a source of great interest to me and must be to you. It is the one semi-malignant, if not benign, neoplasm which the microscope pronounces as a giant cell sarcoma. The giant cell sarcoma in every other portion of the body is a malignant lesion except the giant cell sarcomata that are in the head of the femora, the alveolar giant cell sarcoma, the one attached to the superior turbinated bone, the one that originates on the margin of the sphenoidal fossa, and the one in the frontal sinus. These all spring from the periosteum, or peridental membrane. They have the typical sarcomatous microscopic picture, but if you will remove just a little of the basic membrane from which they start, you do not have to extract the teeth. It is exactly the same in the nose. I recall seeing a young woman in von Bergmann's clinic in 1883 who had a sarcoma which sprang from the superior turbinated bone. She had been operated on a hundred and eighteen times for polyps. It was a typical giant cell sarcoma, and all that was necessary was to open the nose and take off a piece of the periosteum from which it originated. This was done, and a cure was effected. It was formerly the practice of surgeons to remove a considerable portion of the mandible in taking away this type of growth, but today that practice is not justified, but it is essential that you take out the piece of the periosteum or peridental membrane from which the growth springs, and usually that is all that is necessary.

The fibrous variety of epulis does not concern us much. It is not sufficiently malignant, and when the primary seat of the disease is removed the patient is cured, and the disease never recurs. Neither of these, however, produce neuralgia.

Another type of neuralgia mentioned in the literature, is encountered in connection with fractures of the jaw. I have never seen a trifacial neuralgia result from a gross injury to the dental nerves such as fracture of the bone or extraction of the teeth. One of the most common etiologic dental factors in tri-facial neuralgia is the pressure produced by non-interrupted or impacted teeth. These are so frequently found, that no case of tri-facial neuralgia has been thoroughly analyzed unless an X-ray has been made to eliminate impaction as a pain-producing element.

Then, we come to another matter, namely, once the neuralgia has started, it is the most difficult of all lesions in the body to cure without performing that radical, serious and dangerous operation, the removal of the Gasserian ganglion or extraction of the root. What have the operations been? Let us analyze them. First, peripheral divisions. Here, you see, the infraorbital foramen, the supraorbital foramen, and the mental foramen the peripheral nerves are divided in the treatment and after they are divided the neuralgia in the great majority of cases is temporarily cured and remains cured. Naturally the genetic force of the Gasserian ganglion sends out its axis cylinder and penetrates the connective tissue where the nerve was divided and regenerates again to the distal central body. How do we know that? We know that from practical experience. In treating these cases since 1894 I have followed all of the various operations. I was particularly interested in one form of treatment, namely, osmic acid injections in these cases. Sixteen months later, the patient remarked, "Doctor, my face is just commencing to feel as natural as it ever did," but a little later the same patient would inform me that his neuralgia had returned. Just as sure as I received a second letter from the patient, I was always sure to get the information that the neuralgia was returning. Why? Because the nerve had regenerated, and sensation had come to be natural. Why does it do that? We do not know. We do know that when we have severed the connection between the peripheral bodies and the ganglion and keep it severed, the neuralgia will not return. Now, let us follow the operations.

First, we have the peripheral divisions. These were the first operations that were done, and the benefit from peripheral division lasts from four and a half to seven months if you do nothing else, because it takes from three to nine months for the nerve to regenerate, depending upon the amount of connective tissue that is deposited at the place where we operate. One of the greatest barriers against the reestablishment of function in a nerve is the deposit of connective tissue, and in all of the spinal nerves, for instance the brachial plexus, if divided through and through, and there is an inch of connective tissue between the ends, they never regenerate. There is permanent paralysis, because this small ganglion, compared with the trifacial ganglion is unable to force its axons through the mass of connective tissue and it took us years to find out why Dr. "Smith" would take one of these branches and sew it after it was divided and get restoration of function, while Dr. "Jones" would sew it up and have a complete and perfect failure, and if you will read the literature of nerve suture from 1847 down to 1898 you will find the history of case after case of a good result by Dr. Smith and a bad result by Dr. Jones, both apparently using the same process or method of operating. They had not learned the essential principle of nerve repair. When you cut one of the cerebrospinal nerves, immediately after division a neuroma is formed, a capsule of connective tissue is formed, and this completely insulates that end. Here is the distal end with a similar neurone, which completely insulates that end. You can sew these encapsulated ends together from now until doom's day, and you will never have a single transmitted impulse because the axons are not contacting. There must be contacting of the axons as you have it in building a telephone cable if you expect to have transmission. Dr. Jones, who had failures, sutured the nerve ends with the neuroma on. Dr. Smith, who had good results, cut off the neuroma brought the axons together, sutured them, and had perfect and complete restoration of function the same as we would if two bones were placed in apposition.

The role which the trifacial nerve plays is entirely different from that of all other nerves. You can introduce a considerable quantity of connective tissue between the divided ends; you can separate the ends half an inch, an inch, or even three inches, and still the nerve will send out these axons with such force that if you have nothing there but connective tissue it will go straight through it and meet the distal end, and regenerate completely and perfectly. That is why the neuralgia is recurrent, and that is why we have had such great difficulty in overcoming its recurrence.

A second operation consisted of dividing the nerves as they come out of the cranium, that is, at the foramina ovale and rotundum and the only one that comes through the spheno-maxillary fissure is the ophthalmic division. That is not divided. The elder Dr. Andrews of this city was one of the first to do what is known as the Rose operation. larged the foramen and divided the nerve, and still it grew. After it was divided, it took a longer time to grow, but still it grew and the neuralgia returned. Finally, the division of a part of the nerve within the cranium from the outside was practiced, allowing it to retract, and still it grew, and another operation was performed. Then Dr. Abbe, of New York, said, Let us interpose unabsorbable material inside the foramen or the foramina and stop the contact, and he used gutta percha for that purpose, but the gutta percha crumbled after a while with the heat of the body. Mayo, of Minnesota, after all these failures, conceived the idea of using an ordinary iron screw with the head towards the brain. He screwed it into the foramen. What did that do? No foreign body remains under pressure in any tissue, except the teeth, without producing absorption. The screw loosened itself, and again the nerve grew.

The next operation suggested was the removal of the Gasserian ganglion. The removal of the ganglion was heralded as the great cure for trifacial neuralgia, and it is. We have just said that this is a central cell body from which all life comes. Every fiber of the nerve has its central cell body in that ganglion, and after you remove all of these cell bodies you have no effort at regeneration. There is danger attending the removal of the ganglion. The ganglion is impacted between two layers of the dura. It is just inside the middle meningeal artery. You are away in the depths of the cranium, and as you separate the two layers you open the cerebrospinal sac and you have cerebrospinal fluid flowing into the operative field, and when you separate it a little more perhaps to look at the ganglion, you may not see it again for half an hour on account of the blood that flows in from the sinus. You have to open the sinus in the neighborhood, and no less a surgeon than Keene abandoned three in his first eight operations for a torn, and a cerebrospinal infection, or a cerebrospinal meningitis, may result. That fortunately is becoming less, but the hemorrhage and the technical difficulties of removal of the ganglion are not growing less. We are able to control hemorrhage more effectively now than formerly, but still in some of the cases you will be half an hour, after you have exposed the ganglion, before you can lift it out, in the meantime using sponges to control hemmorrhage from the sinus. You must remember, you are working in a dangerous position.

Then came Frazier and Spiller with the suggestion that, in place of removing the ganglion, we should pass behind the ganglion, divide the outer portion of the dura, and then extract the sensory root: After you expose it, that is the easier operation of the two. It is a little difficult to make the exposure, but when once made, it is much easier to handle than the removal of the ganglion, and that is now becoming the favorite operation, but there is as much danger from it as from the removal of the ganglion so far as infection is concerned. These two branches seem to be the ones that concern us most, because if we occlude these foramina we have cessation of the neuralgia until regeneration takes place. Then came the plan we worked out, that is, in the place of using gutta percha we use coal-tar paraffin. Coal-tar paraffin is a non-absorbable material. It does not digest. It remains for years in exactly the same position and shape.

As you look over this field in here (referring to the chart) in the central fossa, you see how close these two foramina are. When you push back the dura, and without opening it, without getting into the cerebrospinal space you extract the roots from without inward through the foramina, divide them, put in there a piece of coal-tar paraffin as large as a nickel, and just about as thick, but a little oblong, and press it. Pressing forces a projection of the paraffin into the foramina and prevents the paraffin from sliding. It is non-penetrable. We have cases that have gone for three and a half years with complete cure by that simple intracranial division of nerves and paraffin interposition. Whether the nerves will finally grow time alone will tell.

Of the methods used, the ones that are the simplest and which are coming into vogue are the nerve-blocking methods blocking the transmission of impulses, and the method that is most popular at the present time is the injection of alcohol. It is not a difficult thing to do. As you look at the under surface of the cranium you see the foramen ovale. Here is the foramen rotundum, and the nerve passes right along in that line so that you can block the nerve as it comes out of the foramen by injecting seventy, eighty, or ninety per cent alcohol, with some cocain, or without cocain, into it. It matters not whether you do or do not use cocain so far as the final result is concerned. The French injected alcohol in this position (indicating), passing the needle in from below zygoma. You can see that the needle passed in from below can pass into the orbit and produce strabismus. It paralyzes the motor nerve, the abducens, but in passing the needle in from above there is but one place where the needle can go after you pass the ptyregoid process, and that is, into the nerve. You cannot reach any other place. This blocking of transmission has given splendid results. It is an operation that involves no risk to the patient, but the duration of the relief is short. It ranges from three and a half to fourteen months. I believe there are some cases where the etiologic factor was removed coincident with the treatment which should always be the practice, where there was a cure lasting as long as three years. But these cases are very few. The injections have to be repeated. Fortunately they are not dangerous, and they can be repeated as long as they give relief. In our use of osmic acid for this purpose we had a different matter in view. When osmic acid is injected into the dental nerve at the foramen it produces enormous destruction of tissue, and wherever you have an enormous destruction of tissue you will have an enormous mass of cicatricial reparative tissue. In the use of osmic acid we have had some cases that have remained well for seven years, but that does not represent the average duration of relief. The average runs from fourteen to eighteen months, during which time they have complete relief. This operation is done by injecting the supraorbital foramen with the osmic acid with or without cutting, preferably with cutting, into the nerve itself, exposing the infraorbital and mental foramina through the mouth and injecting the osmic acid into the nerve trunk and on into the canals. The posterior palatine is injected without incision.

What I have said, gives you an idea of the operations that are now in vogue for the relief of this disease, the cause of which no man has yet determined; therefore, we cannot remove the cause only in exceptional cases. Why a man can have his jaw jerked out entirely, as is illustrated in this case of which I have a skiagraph, and replaced by a foreign body, and have no neuralgia, and why a man can sit by an open car window on a balmy day and be suddenly seized with pain which he never gets over until he is dead, that incapacitates him all his life, and whose suffering is intense, we do not know. We do know that by following a certain line of treatment, regardless of the removal of the etiologic factor, we can, first, block it. Second, we can relieve it for a long period of time by the interposition of connective tissue; we can block it by the intervention of unabsorbable material; that if we take risk, which is about eight per cent, we can operate and remove the ganglion with success, and if we take a little more risk, say from seven to nine per cent, we can operate and cure the disease regardless of where it originated.

I thank you for your attention. (Applause.)

THE INDEX OF PERSONALITY.*

BY FREDERICK B. NOYES, B. A., D. D. S., CHICAGO.

Since the earliest history of medicine men have recognized that the best service in very small fields required a knowledge and skill that taxed the ability of the best and strongest men to attain. Dentistry came into existence as a profession because men could not attain sufficient knowledge and skill in this field from the schools of medicine, and its development has resulted in a very much greater appreciation of the importance of the preservation of the teeth in full function, to the health and vigor, and working efficiency of the body and mind. But we have only just begun to recognize the relation of the teeth to the development of the face.

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*Read before the Illinois State Dental Society, May 18, 1910.

In life, personality is the greatest factor. Personality is not a physical attribute, it is rather the imprint of the mental attributes upon the physical frame. The bearing, the figure, the carriage, the face, express the man, and we judge men and women by these things. The habit of mind will make its stamp upon the face and the judgment which people make from the face will react in the development of character. The child that is judged stupid from his face will come to consider himself stupid, and draw more and more within himself. The person who is judged weak and uncertain will doubt more and more his own opinion and acquire more and more the qualities attributed to him. A child has no greater right, therefore, than that he should have a fair chance to have his personality make its imprint upon his face—to have his face become a true expression of himself—but, what are in the truest sense accidents, are continually marking faces with characteristics which are in no way the imprint of personality but which react upon the individual in the moulding of character. There are thousands of faces—they are always to be seen on the streets and

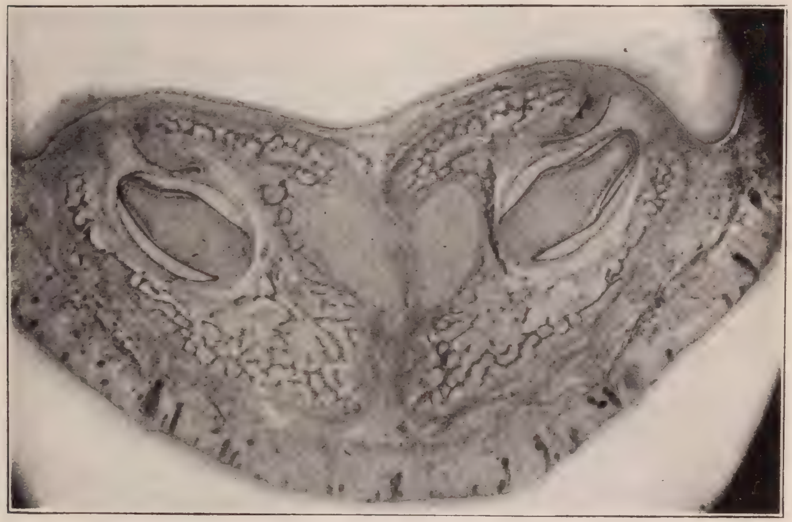

Fig. 1.

in public conveyances—that are at once taken to express weakness of character, which at least originally bore no relation to this mental quality, but were the result of the accidental relation of the first permanent molars. How unfair it is that persons should be allowed to grow up and form character with the qualities of indecision, weakness, cynicism, pugnacity or ferocity attributed to them which are not inherent mental qualities but the result of an accident of occlusion!

Orthodontia has been defined as "The science of occlusion and the art of correcting mal-occlusion." I like to think of it as "The study of the relation of the teeth to the development of the face." This is but another form of expressing the same thought, for it will be seen that it is through occlusion that the forces which cause the development of the face are distributed throughout the bones, and the science of occlusion therefore includes the relation of occlusion to the development of the face.

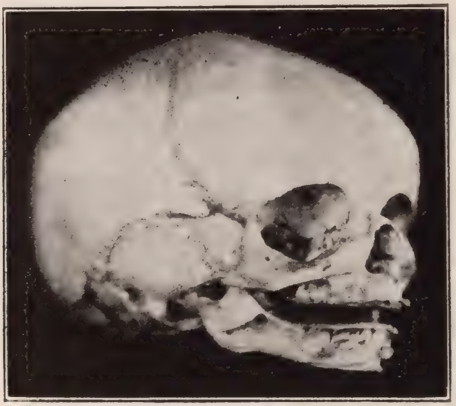

Fig. 2.

Few have given much careful thought to occlusion. When studied minutely it is recognized as a wonderful mechanism which by the reaction of inclined planes distribute the forces which produce the development of the bony scaffolding of the face, the framework upon which the muscles and tissues are held, and which therefore determines the proportion and harmony of the features.

If the planes are in abnormal relation the teeth are not only obliged to be diverted from their normal positions, but the abnormal distribution of forces upon the bones will result in abnormal growth and the loss of balance and harmony. It may be stated as an axiom, that in proportion as the occlusion deviates from normal, the balance of the face will be disturbed.

"The forces of occlusion" has become a technical expression in Orthodontia, and is defined as the forces which guide the erupting teeth into their normal positions. They are, first, the reaction of the inclined planes of the cusps of the teeth. Second, harmony in the size of the arches. Third, the contact of approximating tooth surfaces. Fourth, the muscular action of the lips, cheeks and tongue. These distribute and balance the dynamic influences exerted upon the teeth by the growth of muscles and other adjacent organs, the action of the muscles in mastication, deglutition and respiration, and the growth of unerupted teeth which is exerted until their roots are fully formed. The forces of occlusion when in normal relation guide the teeth into their normal positions, but when diverted from their normal relation they become just as positive in their action in driving the teeth farther and farther out of their normal positions.

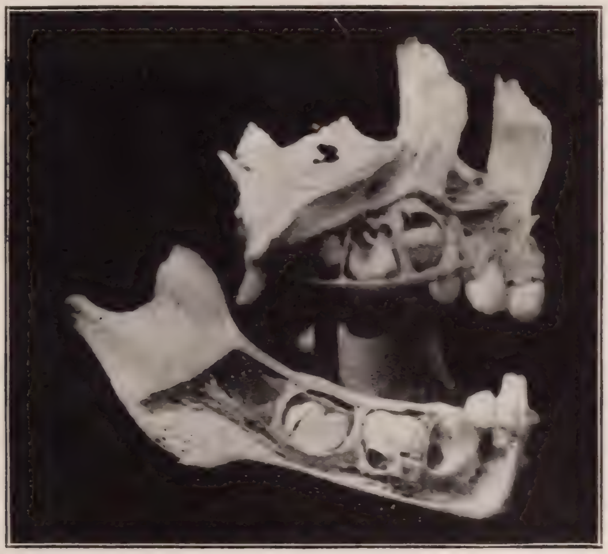

Fig. 3.

Many have failed to recognize that normal occlusion includes more than the relation of the inclined planes of the cusps of the teeth to each other, and that the teeth must be in harmony with the *"line of occlusion"* which Dr. Angle defines as being "the line with which, in form and position according to type, the teeth must be in harmony if in normal occlusion." There can be but one line of occlusion in any given case and this must be in harmony with the architecture of the entire skull and in fact the whole individual. This conception of the line of occlusion and the relation of the teeth to it as a part of the conception of normal occlusion seems to have been entirely overlooked. The conception of the line of occlusion seems to me the greatest generalization of orthodontia, and that the forces of occlusion if maintained in normal balance will guide the teeth into the line of occlusion is the basis of all scientific orthodontia. That the teeth should be in normal cusp relation and under the influence of the normal action of the forces of occlusion during development, and be out of harmony with the line of occlusion is inconceivable, and that the teeth should be out of their normal cusp relation and in harmony with the line of occlusion is equally inconceivable. The superficial idea of a general alignment of the teeth of each arch and the failure to conceive of the line of occlusion which

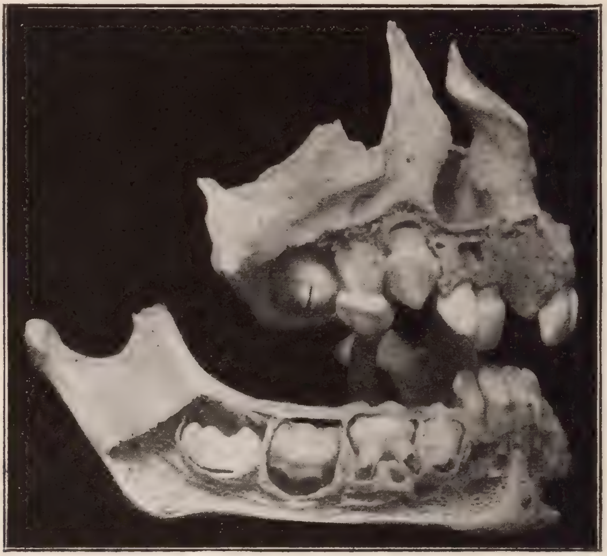

Fig. 4.

is in harmony with the architectural plan of the whole individual type, as well as with "the size, form and pattern of each individual tooth and cusp" has been the cause of more failures in orthodontia than all other things combined. The general idea of tooth movement has been that some tooth or teeth were out of line and that they were to be forced back into place. Force was applied to the teeth which was to cause them to move as a post might be moved through the mud. This has been a fundamentally wrong conception. The appliance should not be thought of as moving the tooth but as supplying a mechanical stimulus which causes tissue changes and growth which moves the tooth. In this connection the growth of the bones of the face and the forces which govern them has been lost sight of. It must be remembered that during the entire period of growth the teeth are moving through three dimensions of space under the influence of mechanical forces which are in no essential way different from forces exerted by regulating appliances.

Before considering the growth of bone, and the changes from the child to the adult face, some general biological laws in regard to bone growth must be stated. These should be continually borne in mind during the consideration of development.

First.—Bone is formed in response to mechanical stimuli.

Second.—The structure of the bone is more dense, but less in amount, on the side toward which the forces have been exerted.

Third.—The structure is less dense, but greater in amount on the side from which the forces have been exerted.

There are three varieties of bone which are constantly being transformed from one to the other in bone growth.

First.—Sub-periosteal bone.—This must be considered as a transitory or formative variety. It is never allowed to become great in amount. In it the lamellae are laid down parallel to the surface. The cells lie between the layers. The layers are penetrated by canals which contain blood vessels, but the layers are never arranged concentrically around them. These canals are known as Volkman's Canals.

Second.—Haversian system bone, or compact bone which makes up the greater part of the shafts of the long bones and plates of the flat bones. In this the lamellae are arranged around long canals which connect with each other leaving a little of the original layers to fill the spaces between the cylindrical systems or Haversian Systems.

Third.—Cancellous Bone which is made up of thin plates or spicules containing a few lamellae arranged around large irregular spaces.

Sub-periosteal Bone is converted into Haversian System Bone by the absorption of a large part of it forming Haversian spaces around which concentric layers are laid down forming Haversian systems. Haversian System Bone is converted into Cancellous Bone by absorptions beginning in the Haversian Canals cutting out large irregular spaces and the forming of a few lamellae around them.

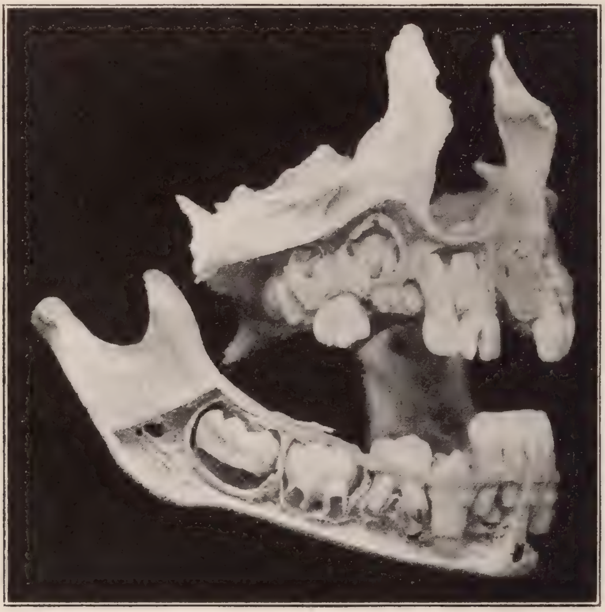

Fig. 5.

In the opposite way Cancellous Bone may become more compact by the formation of concentric layers around its large spaces. Absorptions appear under the periosteum cutting deep into the compact bone and then a few layers of sub-periosteal bone will be laid down on the surface. The study of the arrangement of the lamelae reveals the history of the direction and manner of growth of the bone.

Some years ago I undertook a study of the structure and growth of the jaws and alveolar processes which resulted in a very important modification of the conception of the matter as given in the standard texts. Tomes describes the process as essentially an addition at the back of the jaws to make room for the successively developed permanent molars, as illustrated in his diagram for the mandible, and the following picture for the maxillae. On page 208 of Tomes Dental Anatomy he sums up the description in two paragraphs as follows:

"But the main increase in the size of the jaw has been in the direction of backward elongation; in this, as Kölliker first pointed out, the thick articular cartilage plays an important part. The manner in which the jaw is formed might also be described as wasteful; a very large amount of bone is formed which is subsequently, at no distant date, removed again by absorption; or we might compare it to a modelling process, in which thick, comparatively shapeless masses are dabbed on to be trimmed and pared down into form.

"To bring it more clearly home to the student's mind, if all the bone ever formed were to remain, the coronoid process would extend from the condyle to the region of the first bicuspid, and all the teeth behind that would be buried in its base; there would be no neck beneath the condyle, but the internal oblique line would be a thick bar corresponding in width with the condyle. It is necessary to fully realize that the articular surface with its cartilage has successively occupied every spot along this line; and as it progresses backwards by the deposition of fresh bone in its cartilage, it had been followed up by the process of absorption removing all that was redundant."

In a similar way in any maxilla, the temporary dentition is shown to occupy about the same space as the permanent teeth, as far as the second bicuspid and the adult is supposed to be formed from the child by the building on of the bone at the back as the molars are formed.

This conception is fundamentally misleading for, if the infant mandible were to be shown in the relation to that of the adult in three dimensions of space it would be found to be above and entirely within the adult mandible, and no part of the bone which constituted the infant jaw is present in the adult. In the upper, if the temporary teeth at two years were figured in relation to those of the adult they would be placed somewhere up in the nasal cavity. Now, let us endeavor to follow the growth from the infant to the adult and picture for ourselves what takes place. By the end of the fourth month the formation of bone from the various centers in the maxillae have united and a periosteum is formed. The tooth germs for all of the temporary teeth are formed and those for the corresponding permanent teeth have just started. A section through the jaw of an embryo pig will illustrate the condition. (Fig. 1.) From now on bone will continue to be formed by the periosteum and this will be transformed and rebuilt inside. The articular cartilage will play its part but it cannot at all be thought to build up a great mass of bone which is carved into shape by the periosteum.

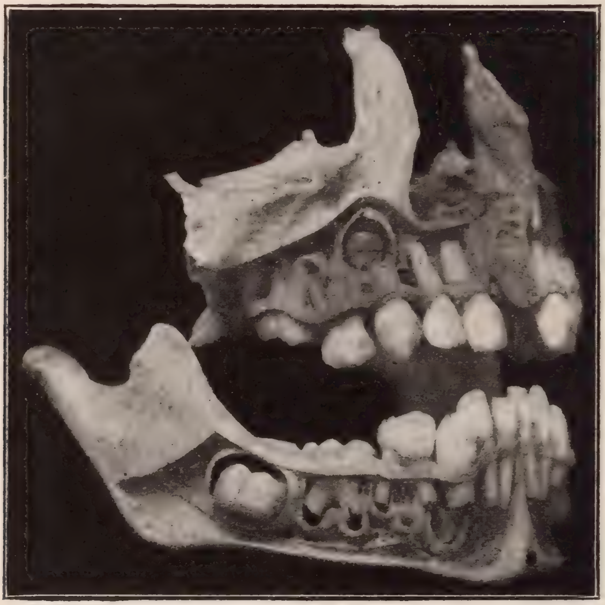

Fig. 6.

As soon as the crowns of the teeth are formed they are enclosed in crypts in the bone. These crypt walls are called cribiform plates because they are full of holes and are really a definite arrangement of plates of cancellous bone to form a continuous layer. At birth all of the temporary teeth are seen in their crypts. (Fig. 2.) The mandible is almost straight from the condyle to the symphysis. As the tooth grows in its crypt the wall is not simply absorbed but is forced back through the cancellous bone in the direction of least resistance. Absorption occurring in the cancellous bone and the crypt wall is divided and pushed through it.

At about nine months the first incisors push through the roofs of their crypts and begin to erupt. The continued growth them, increasing the thickness of the bone from below upward. (Fig. 3.)

At one year all of the incisors are erupted and the temporary molars and cuspids are growing rapidly. (Fig. 4.) Now we must conceive of this bone not as a solid hard thing, but as a wonderfully plastic tissue in which millions of cells are constantly at work forming, destroying and rebuilding bone lamellae, and that this activity is the result of all the mechanical influence to which the bone is as a whole subjected. We cannot consider all of these forces but will center our attention upon the development of the teeth and their influence on the growth of the bone.

At a year and a half the first temporary molar is erupted, and notice that the growth of the roots of the incisors has carried the lower teeth upward, forward and outward, the upper teeth downward, forward and outward. (Fig. 5.) They are moving in three dimensions of space and the entire bone is also. There is bone formation by the periosteum, peridental membrane and articular cartilage, on all of its surfaces in fact, which is being transformed within. The bone formed today by the periosteum and the peridental membrane is next week destroyed and replaced by Haversian system bone, only to be destroyed again, and again replaced.

By two and a half years (Fig. 6) the temporary dentition is complete and now the growth of the permanent teeth produces pressures which continue to force the temporary teeth downward, forward and outward in the upper jaw, upward, forward and outward in the lower. From this time till six years the temporary teeth, alveolar process and all, are moved through space, largely by the force of the developing permanent teeth, but we must not forget that all the forces of occlusion are acting.

About six years the first (Fig. 7) permanent molar erupts, the lower driving the cone of its disto-buccal cusp into the hollow between the four principal cusps of the upper. These four teeth should not only do the greatest work in mastication while the temporary teeth are being replaced, and retain the relation of the jaws to each other, but they are the fulcrum which balances the distribution of muscular force upon the jaws. If their relation is not normal all of the forces of muscular action are perverted. Therefore, those who see in the Angle classification of mal-occlusions nothing but an arbitrary arrangement based upon the occlusal relation of the first molars have not yet gained the faintest conception of that classification.

In the growth from the child of six to the adult, Cryer describes the increase in size as first occurring in the anterior region, increasing the distance from the symphysis to the mental foramen, and later in the region from the mental foramen to the ramus increasing that distance, and he explains it by saying "that there is an interstitial growth of bone" meaning a growth within the substance of bone. His description is correct but we will see that his idea of how it occurs must be modified.

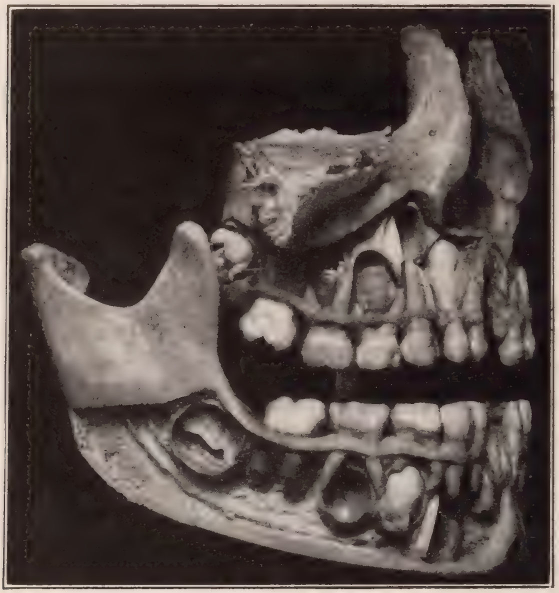

Fig. 7.

The first period of growth in the incisor region is caused by the growth of the permanent incisors and cuspids. I would like to analyze this much more closely than time will permit. In the skull of about six years the first molars are in full occlusion, though their roots are not more than half formed. (Fig. 7.) All the temporary teeth are in place except the lower central incisors which have just been lost. Notice the second molar in its crypt and the bicuspids below the temporary molars. The growth of the dental papillæ for the cuspids have pushed back the floor of their crypts through the cancellous bone till the upper has reached the solid bone at the base of the malar process and the lower has reached the solid cortical plate at the lower border of the mandible. The front view of the same skull will show the relations better. (Fig. 8.) The lower centrals are being carried upward by the growth of their pulps in the conical ends of their half formed roots. The laterals lie to the lingual of the temporary lateral roots and the cuspids to the lingual of the temporary cuspids. The arrangement might be compared to the classic football "V" all acting shoulder to shoulder, to carry the teeth already erupted, alveolar process and all, upward, forward and outward, into a new and larger arc. A slide showing just this region of the skull will show the detail of the arrangement still better. In the upper the central crypts rest against the solid bone of the floor of the nose, the lateral against the cuspid, and the cuspid against the base of the malar process. Their growth will carry the temporary teeth and process downward, forward and outward, creating spaces between the incisors and cuspids and enlarging the arc.

The side view shows the forward inclination of the cuspid and its relation to the lower border of the mandible. (Fig. 9.) Now the growth of the full length of the long cuspid roots will move all the incisors just as positively as a jackscrew and in the next slide the result is shown. It is perfectly apparent that to have the result the teeth must preserve their normal contacts. If one incisor slips by to the lingual or labial it must be forced to lap more and more, and the arches are narrowed in proportion. There is no possibility that the bone will grow and make room for them; the mechanism which should cause the growth has "slipped a cog." The growth from the symphysis to the mental foramen in this period is then not an interstitial growth of bone, but a building on at the surface and rebuilding within, under the influence of mechanical conditions. In this face taken from Dr. Angle's book, the under development of the lower portion of the face is very apparent. The lower cuspids were horizontal in the bone and therefore failed to exert their influence.

Now the growth of the bicuspids, and the second and third molars, augmented by the action of the inclined planes in occlusion, caused the development in the second period, and the increase in the distance from the mental foramen to the ramus. The forces at the back transmitted through the contacts, caused the teeth and bone to continue to move in the same directions. (Fig. 10.)

After the second molar is in place the growth of the third should continue the action (Fig. 11), but too often there is too little vigor in the use of the teeth in mastication, too little force in the action of the muscles of respiration and swallowing and consequently not enough stimulus is given to the cells of the bone to keep up their activity. The resistance is too great and the third molars remain impacted. If the tissues retain their full vigor and the third molars erupt normally their influence together with the influence of muscular action will carry all of the upper teeth farther downward, forward and outward, all of the lower upward, forward and outward. Notice the distance from the apices of the incisor roots to the floor of the nose and the lower border of the mandible and compare it with the next slide. (Fig. 12.)

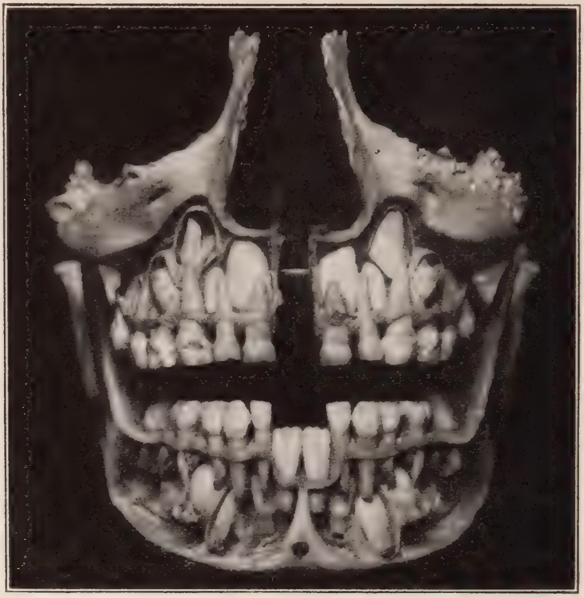

Fig. 8.

We have seen then that the bone has not only been built on at the back, but that forces within it, at the back, and around it, have carried the anterior part forward.

A series of front views of the same skulls, photographed in the same relative size, thrown on the screen in rapid succession will illustrate the growth. In these note the increase in the distance from the floor of the orbit and the floor of the nose, to the incisal edges as the skull grows.

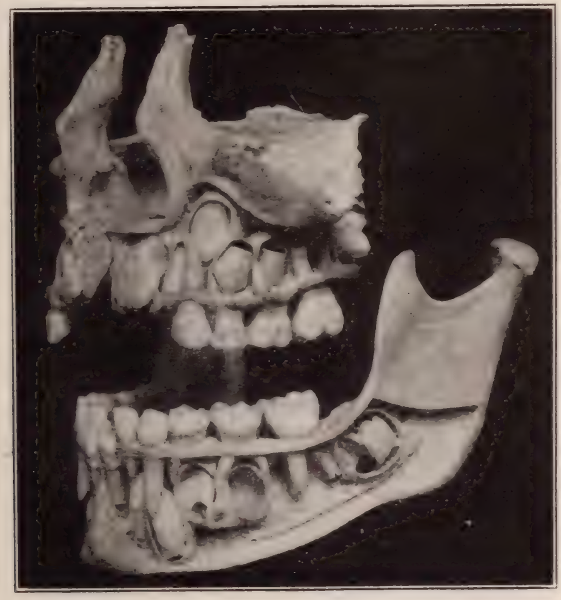

Fig. 9.

A diagram made by photographing the right maxillae from the median line and superimposing the diagrams shows the child incisors in the nasal cavity of the adult. Some writers have minimized the importance of the causes of mal-occlusion, saying that we were not concerned with how the teeth came to be out of position but with placing them in position. This I believe to be a great mistake. There are two classes of causes in the production of mal-occlusion—what may be called immediate causes or the preversion of the forces of occlusion, and ultimate causes or the condition which preverted the normal forces. The first are absolutely logical and thinkable and just as definite as any laws of chemistry or physics. The first step toward the treatment of any case is to determine which of the forces of occlusion are lacking or perverted, and the supplying of them by artificial means. The causes acting become the basis for the diagnosis, the treatment given and the prognosis. The perversion of forces in any case is by no means a simple problem, but upon the correctness of its solution depends the success of treatment. Teeth may be moved in any direction and almost to any extent, but they will remain only in the position in which all the forces to which they are subjected are balanced.

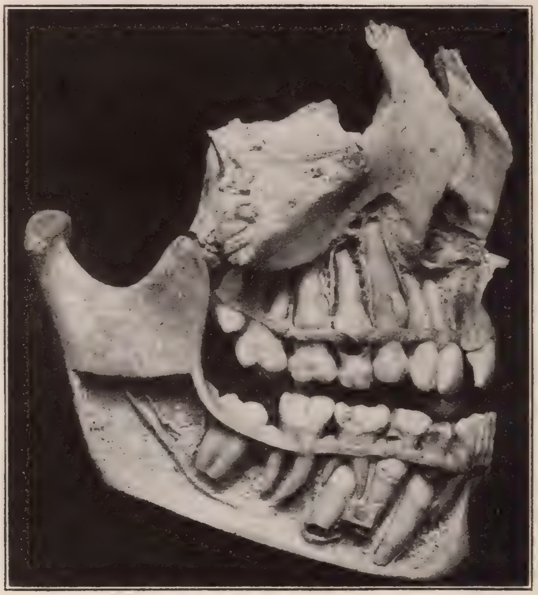

Fig. 10.

The ultimate causes present many fields for speculation and research and a knowledge of them will undoubtedly allow us to prevent many cases of mal-occlusion, but there are few of them for which we can give any explanation now. We do not know why a child should develop adenoids or why a cuspid should be horizontal in its crypt instead of in its normal position, or why incisors should slip by their normal contacts. Many of these things we can now consider only as accidents, but when such a condition occurs we can foretell its result.

All mal-occlusions are necessarily progressive during the entire period of development. This the dental profession do not sufficiently realize. They seldom notice a case until some tooth has been forced out of line or unless some tooth erupts in marked abnormal position and then they see only the unfortunately placed tooth. They are very apt to say "Oh that is easy to push back where it belongs," but it does not stay. They too often still say, "Wait 'till all the teeth are in or the new ones will push it out of place again." The modern idea of Orthodontia is to restore the normal balance of forces during development and allow nature to produce a normally balanced and symmetrical face upon which the habit of mind will make a true imprint of the personality.

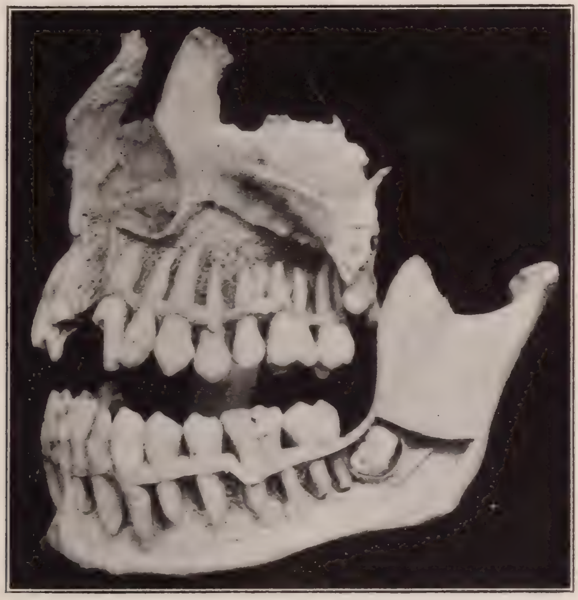

Fig. 11.

It is the dentist that first sees or has an opportunity of seeing mal-occlusions. Why should he not recognize them and not allow the development of a distorted face? Why should a child, just because he had enlarged and tender tonsils and pushed the mandible forward to relieve the pressure while the first molars were erupting, be allowed to develop a protruding chin and over developed mandible, giving him a brutal face to belie a delicate and sensitive personality? Why should another just because he did not breathe properly during the same period, and locked the lower molars in distal occlusion, disturbing the balance of all forces exerted on the mandible, be allowed to grow up with the insinuation of a weak and uncertain character, when he may have as much determination as any one? Or why should a well formed frame and fine head have a pinched and baby face because some one pulled out some teeth to make room for the others? The time is past when the general practitioner can be excused for these oversights and bad counsels which are the relics of former times.

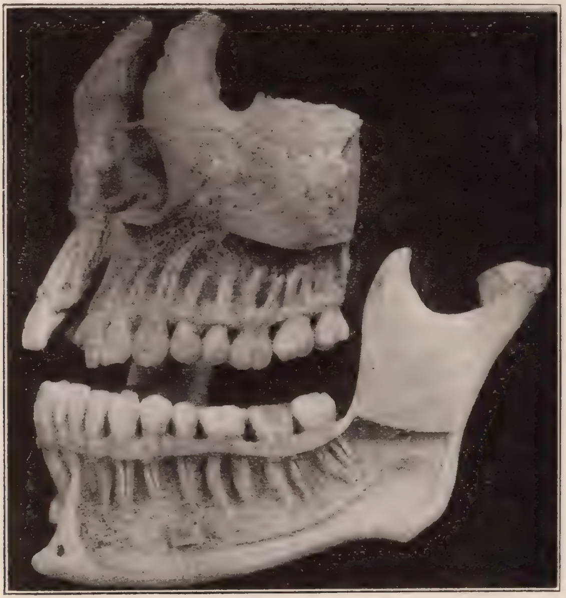

Fig. 12.

Finally Orthodontia has taken a place as a distinct speciality of dentistry. That it should do so is inevitable, both from the practical and theoretical sides. Dentistry is the study of the diseases of the mouth and their treatment, a field big enough for the strongest man.

Orthodontia is the study of the development of the face. It is a field requiring knowledge never to be gained from the study of the diseases of the mouth and their treatment, and requires an amount of knowledge and skill not to be acquired without special effort. The two professions must always be in the closest contact, and will always work together. The one to preserve and restore the teeth to full function, the other to prevent disfigurement and deformity, and both together to make the faces of the next generation more truly indicate the personalities behind them. From the practical side Orthodontia and operative dentistry are very difficult to coördinate.

A GOOD SET OF TEETH ONE OF THE MOST IMPORTANT ATTRIBUTES OF MAN.*

BY A. H. PECK, M. D., D. D. S., CHICAGO.

It is a far cry from primitive man to the product of twentieth century civilization. The history of the race is a story of unfolding life. There have been eddies and back currents in the stream no doubt; times when whole nations have slipped down from some vantage ground which had been gained; periods of retrogression and decay. But when we take comprehensive views of human history no one can doubt that humanity has steadily marched from low to higher, from poor to better, from the ignoble and unworthy to nobler interpretations of life and its true meaning. Some will be found in every community and every age who sigh for "the good old times;" whose eyes are turned backward and who see the golden age for the race in the past. But the careful student of history knows that today is better than yesterday; that the larger knowledge of nature and her laws, the newer learning, the development of the moral faculties, the increase of human brotherhood, the nobler ideals of life, make the man of our age superior to any who have preceded him in the long march of humanity through the centuries.

Not least among the evidences of human progress is the unmistakable growth of human knowledge concerning the body, and the greater consideration for its welfare. Manhood is not to be measured by a tape line or character by the weight in avoirdupois. "As a man thinketh in his heart so is he." The real man is determined by his purposes and aspirations, and not by the color of his hair or the shading of his skin. The one who lives only for sensual gratification has abrogated his rights as a man and becomes only an animal.

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*Read before the Illinois State Dental Society, Springfield, May, 1910.

> "What is a man
> If his chief good, and market of his time
> Be but to sleep and feed."

But we know nothing of manhood apart from a physical house in which it dwells. Whatever psychical investigators may hope and dream as to disembodied personalities, we have to do with intelligences which manifest themselves through material forms. Yea, more; we know that these intelligences not only exist in and express themselves through physical bodies, but that these bodies exercise a very great and very constant influence upon the personalities with which they are associated. Just now there is an epidemic of emphasis upon the influence which the mind exercises over the body. We are told that if one can but believe that his tooth does not ache it will not ache; that not only functional but organic troubles may all be dissipated by right thinking. No sensible man will deny that the mind affects the body; but on the other hand no one but a charlatan will seek to minimize the effect produced by bodily conditions upon the mind. The study of criminals, of children with defective mentality, of the abnormal, whether young or old, is making it more and more certain that we are to seek in physical conditions for the explanation of much which heretofore has been considered as purely psychical.

While we who are gathered here today are interested in everything that has to do with human welfare, our special interest concerns the body. The fact that our professional work is confined, largely, to a certain portion of the body does not make us indifferent to the body as a whole. Specialists although we are, we are concerned in all that contributes to the symmetrical, ideal, physical system. It is because we are thoroughly convinced that if one member suffers all the members suffer with it, that we are devoting ourselves to oral surgery and hygiene. While we may not be experts in that ancient book which is the storehouse of our religion, and may fall very far short of practicing even that which we know of its teachings, there is one portion of it in which we have abiding confidence. In its pages we find the record of a great man's meditations upon man; and his conclusion that no part of the body can say to any other part, "I have no need of thee," commends itself to the findings of our experience.

> "Man is all symmetrie
> Full of proportions, one limb to another,
> And all to all the world besides:
> Each part may call the farthest, brother,
> For head with foot hath private amitie,
> And both with moons and tides."

Let us remember that it is the ideal man, healthy, happy, successful, upright, useful, of which the world is in need. Such a man is not the product of a partial and one-sided conception of the many ministries by which life is built up. While we would not detract from the importance of other contributions made to human welfare, if we have any confidence in our own undertakings we must insist that those who care for the mouth occupy a place second in importance to none among those who seek to help man to realize all possibilities of excellence.

To the careful observer of current events it would seem that the "stars in their courses" are fighting for the dentist. There has been no time since dentistry became a recognized profession when the trend of public interest and conviction favored our profession more strongly than at the present hour. The time has gone by when, even in the popular estimate, the mouth is nothing more than a convenient opening through which food may be introduced into the stomach. There was a time when people seemed to assume that if the Lord had made man with a generous slit under the front ribs through which meat and drink could be thrust directly into the stomach it would have been an arrangement much superior to that which we have. The mouth was thought of as having its chief functions in enabling man to talk and spit. Now all that is changed. "Fletcherism" has become the favorite fad. Magazine writers descant upon it, the daily papers exploit it, and thousands upon thousands of our citizens are experimenting with it. We hold no brief for Mr. Fletcher or his theories. He seems quite capable of defending himself and winning converts to his views. But one thing is very evident: If Mr. Fletcher is warranted in any considerable degree in the position which he has taken, then the dental profession benefits most largely by his findings.

It seems to be clear that the medical profession is back of Mr. Fletcher, so far at least as concerns his fundamental postulates. If we mistake not every intelligent physician will consent to the following statement: (1) In order to have health the body must be properly nourished. (2) Nourishment is dependent upon proper assimilation of food. (3) Assimilation hinges upon proper digestion. (4) Digestion is conditioned, to a very large extent, upon proper mastication. It is the mastication upon which Mr. Fletcher is placing such tremendous emphasis, and in his contention he is having the backing of layman and physician alike. Is it necessary to call attention to the meaning of all this to our profession? Accepting the postulates enumerated above, another follows as a matter of course; mastication depends upon the condition of the oral cavity. This is the hinge upon which the door of health turns. Whatever else one may have, if he is unable, from any cause, to masticate his food properly, it is impossible that he shall maintain a normal state of health. As this great truth becomes more generally understood our profession will come to its rightful place of importance among the agencies for human well-being.

With this conditioning relationship between the normal mouth and normal health held in mind, let us turn to the consideration of some, at least, of the meanings for man of that which we have been saying. To begin with that which may seem to be of the smallest importance, let us consider the personal appearance. It is said of Socrates that he prayed that he might be beautiful within. So pray we all of us; but that does not exclude the desire for outward attractiveness, neither does the greater importance of character make physical appearance unimportant. No man has a right to be anything less than his best, whether that best have to do with inner qualities or outward form. It is told of a well-known public character who had one defective eye, that when a faith healer came to him offering to make the bad eye good the great man refused treatment, saying "If both my eyes were perfect I should be dangerously handsome." Whatever may have been true in this case very few of us have any reason to fear lest we become too attractive in personal appearance. Now no one can carry about a set of decaying and offensive teeth without serious injury to his looks. Neither may we part with some of them; exposing yawning chasms between isolated fangs, and retain that measure of good looks which the Infinite intended that we should possess. Necessarily we must open our mouths upon more or less frequent occasions. To open to the public a "chamber of horrors" each time we speak is not only unnecessary but almost criminal.

In an immortal document with which every American is familiar, we are assured that we have certain "inalienable rights," among which is the "pursuit of happiness." There may be those who would deny that the enjoyment of life is to be sought; who would warn us to thrust away all consideration of happiness and think only of what is right. But when we look about us upon the beauty of the earth carpeted with green and arrayed with flowers, look up to the heavens at night spangled with shining worlds, look out upon the glory of a sunset or the majesty of the mountains or the sublime stretches of the sea, we are convinced that the Maker of this universe loves beauty, and that he has implanted this love in the heart of man as a ministry to human happiness. There is nothing sinful in being happy; the sin comes when we refuse to be happy unless we are miserable. Is there any connection between the mouth and happiness? If it be true, as we have claimed, that the oral cavity conditions health, surely it needs no argument to prove the nexus. One does not need to have the tooth-ache to be robbed of joy because of abnormal conditions in the mouth. If he cannot properly masticate his food he becomes the prey of a legion of ills, any of which will effectually destroy the pleasures of life. The greatness of little things is nowhere more clearly illustrated than in the suffering and distress and unhappiness which come from a diseased tooth.

And the appearance and the state of mind affect our chances in life. Literature is teeming in these days with dissertations upon success. Men high in the world of finance or statesmanship or some other department of human endeavor are induced to impart to a waiting public the secret of their success. We are treated to lectures upon habits of thrift, wisdom in making investments, the right use of time, etc., etc., until it seems perfectly easy for any one to go out to repeat the successes of the eminent men whose directions we are considering. Some time a man will know enough and be truthful enough to get back to some elemental conditions of success. Then we shall have essays upon the importance of looking well and of being well; upon appearance and health. When we stop to think about this matter seriously it becomes perfectly evident that back of good habits and a natural aptitude for business and attention to the fundamental principles of business life, lie other conditions not so readily recognized but quite as important. It is true that genius will make its way however handicapped; but the Lord only gives a very few of this class to any generation. The majority need all the advantages that they can secure in the battle of life, and what is more surely real capital than health and attractiveness? No man can do his best when he must spur himself to his task; when, instead of coming to the day's work with alacrity and joy he drags himself wearily along. No man can accomplish all that his powers warrant him in undertaking when his personal appearance repels his fellowmen. It may not matter much how one looks who works underground and alone; but if he toils among his fellows his appearance helps or hinders his success. You would rather buy your groceries from a clean-looking man than from a dirty one; from one whose smile reveals a set of clean and regular teeth than from one who exposes a yellow and disgusting vista when he opens his mouth to tell you that oranges are sixty cents per dozen. In all this we are considering success as measured by business prosperity. But we may not be forgetful that this much abused word has a higher and nobler meaning. To realize the possibilities of manhood; to be all that the normal man should be; to make the most of ourselves; minister to the happiness and welfare of those with whom we have to do; all this enters into and constitutes the real success of life, and all this is conditioned in a very real way upon appearance and health, which, in their turn, hinge upon the normal conditions in the oral cavity.

Having gone this far one questions whether he may legitimately go any further. Is there a vital relation between our work and the morals of the community? At the first thought it may seem to be assuming more than can be substantiated when we say that the dental profession conserves the moral tone of the world. And yet, no less an authority than Dr. Evans, head of the department of health of the city of Chicago, recently made this assertion and in most unqualified terms. In connection with the opening of a free dental despensary in the stock-yards district, Dr. Evans declared, "It is a fact that the physical and moral conditions of any individual are closely allied, and this means that faulty teeth in children must result in imperfect digestion and consequent detriment of their morals." It will not be claimed that a healthful condition in the mouth will solve all the evils which have been credited to original sin. When Billy has had his teeth put into good condition he may still persist in playing hookey, and Jane may still cheat in examinations long after she has had the advantages of the most modern dentistry. Even the dentist cannot bring in the millennium with a rush. But what is claimed is just this: the emotions and the will, those elements of a moral personality, are strongly affected by physical conditions. The healthy body contributes to the health of the soul. There cannot be a healthy body when its gateway, through which nourishment must pass, is diseased. If we would have the normal in body and soul we must secure the health of the oral cavity.

Gentlemen, the day has passed when we must apologize for our profession or consent that it be ranked as among the comparatively unimportant pursuits to which one may devote himself. First by those who know most of the body and its functions and gradually by the public the primary importance of our work is being recognized. When a bequest of two millions of dollars is left for the establishment of free dental dispensaries for the children of Boston, we know our generation has seen a great light. We stand in the dawning of a new day for our profession; a day the full light of which will reveal the dentist as among the real benefactors of mankind; a day in which our profession will be lifted far above the level of mere commercialism and enthroned among the great alleviative and remedial agencies of the world, not only for physical but for moral betterment. But it is only the dawning, and it is ours to hasten the full day. Every large-minded man of our brotherhood will desire to join in the propaganda already initiated for bringing the blessings which we have it in our power to bestow to thousands who are now in ignorance even of their need. When a careful inquiry reveals the fact that 97 per cent of the boys and girls in our public schools are in need of professional attention to place the oral cavity in a healthy condition or, at least, of instruction in the care of the mouth, we catch some glimpse of the vast work which remains to be done. Its very magnitude is a challenge to every true dentist. The meeting held in Cleveland on the 18th of March under the auspices of the Oral Hygiene Committee of the National Dental Association should be duplicated and re-duplicated in the days to come. The literature by which the masses of the people are made familiar with the importance of attention to the mouth should be greatly multiplied. Every dentist should become a preacher and teacher in this crusade for proper care of teeth. Only so shall we fully discharge the obligation that is upon us and give our profession its rightful place among the great agencies by which the world is being lifted up to that high plane of happiness, usefulness and righteousness where a benevolent Creator designs man to live. Thus do I close by repeating the title of this paper with another word added: A good set of teeth *is* one of the most important attributes of man. By "A good set of teeth" is not meant teeth in the abstract but all parts in contiguity in a normal state.

LINES OF DENTURE AND FACE.*

BY DR. R. ANEMA, PARIS, FRANCE.

What I have to present under the title "Lines of Denture and Face" is a contribution to the teaching of "Normal Occlusion" in the art of regulating the denture.

The importance of normal occlusion is sufficiently emphasized when we say that thereon a new school of orthodontia is founded, and that in the practice of orthodontia normal occlusion manifests itself in a doctrine of non-extraction.

My contribution will consist:

1st. Of an analysis of the underlying thought of normal occlusion.

2d. Of the application of the principle of normal occlusion in the practice of orthodontia, and

3d. Of the demonstration of some experimental work pertaining to the same field of normal occlusion.

In the latter I have followed the example of sister-arts, where clinical observation and laboratory experiments help each other in building up human knowledge.

1st. Analysis of normal occlusion:

The underlying thought of normal occlusion is introduced in words taken from the chapter on Facial Art of the book "The Malocclusion of the Teeth," by Dr. Edward H. Angle, where he says, "The best balance, the best harmony, the best proportions of the mouth in its relation to the other features, require that there shall be the full complement of teeth, and that each tooth shall be made to occupy its normal position, normal occlusion."

In this thought can be traced back two orders of ideas, one bearing upon the teeth, the other upon the face. The one bearing upon the teeth I should like to embody in the term "Dental Balance," the one bearing upon the face having already been termed "Facial Balance," a term familiar to the disciples of the Angle School of Orthodontia.

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*Read before the American Dental Society of Europe, March, 1910.

Dental balance I define as the state of repose of the upper and lower teeth while in normal occlusal contact. This state of repose is maintained by forces that can be reduced to six.

1st. From forward to backward.

2d. From backward to forward.

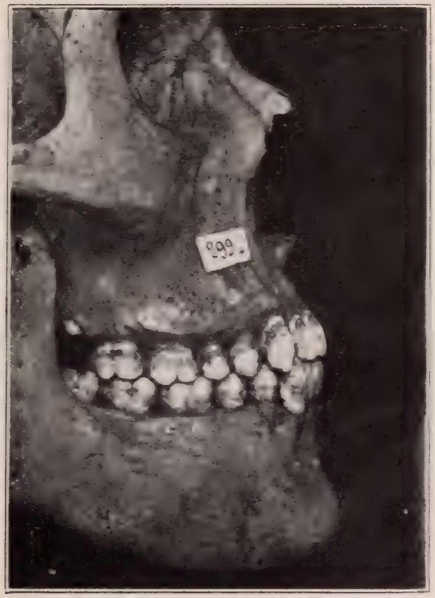

Fig. 1. Photographed through courtesy of the Director of the Museum of Natural History; Paris.

3d. From buccal to lingual.

4th. From lingual to buccal.

5th. From above to below.

6th. From below to above.

These six forces meet in the "line of occlusion." Here they counteract each other to the extent of keeping the upper and lower teeth in a state of perfect balance. An expression of this balancing and counter-balancing of the forces acting upon the denture is found, as far as the forward and backward and backward and forward movement is concerned, in the placement of the mesiodistal masticatory facets of the upper and lower first molars.

If we see how the mesial inclined plane of the mesiobuccal cusp of the upper first molar acts against the distal inclined plane of the mesio-buccal cusp of the lower first molar, how the distal inclined plane of the mesio-buccal cusp of the upper first molar acts against the mesial inclined plane of the distal buccal cusp of the lower first molar, how the mesial inclined plane of the distal buccal cusp of the upper first molar acts against the distal inclined plane of the disto-buccal cusp of the lower first molar, then it seems that an interlocking not unlike the strong interlocking of cogwheels has been produced.

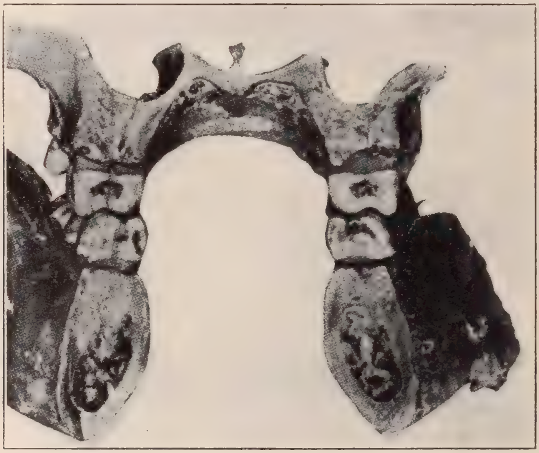

Fig. 2. Reproduced from Dr. M. H. Cryer's Book, "Internal Anatomy of the Face," by courtesy of its Author.

An expression of the balancing and counter-balancing of the forces acting upon the denture is found, as far as the buccal to lingual and lingual to buccal forces are concerned, in Fig. 2, in a transverse cut of the denture.

It is unnecessary to emphasize the fact that dental balance presupposes a normal set of teeth. How much beauty nature expends on such normal denture can be observed in the gracefully contoured lines of the teeth represented in Fig. 3. Without being accused of undue enthusiasm, the upper and lower row of teeth—one superposing slightly upon the other—may be compared to a double necklet of pearls.

As I said at the commencement, facial balance represents the second of the two orders of ideas found in normal occlusion. Facial balance I would define as the state of the features that gives the highest form of beauty of the type. Proportion in facial lines is another term for it. In a well balanced face the lines are well proportioned; for instance, those of the mouth harmonize with those of the nose, as is so distinctly seen in the broad nostrils of the negro. (Fig. 4.) Facial balance does not necessarily mean facial beauty in the vulgar sense of the word, but it excludes mal-proportion of facial lines, as in the case of excessive recession or excessive projection of the lower jaw. (See typical case of 2d and 3d class Angle classification.)

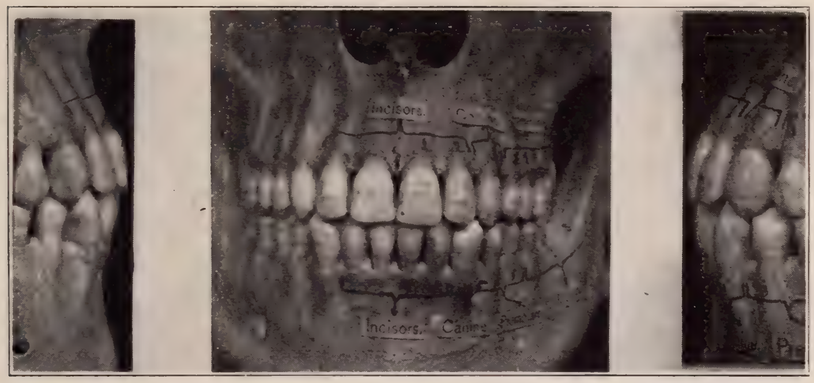

Fig. 3. Photographed through courtesy of the Directors of the British Museum.

To illustrate facial balance the following pictures are shown: (Fig. 4.)

In the "Virgin and Child" by Matzys, the old Flemish painter, we observe the roundness of face of the Flemish woman, its quietness of lines being in harmony with the well balanced mind of the loving mother. Observe too, how the almost circular line of the chin is in proportion with the general roundness of the face.

The picture of Lord Beresford, by Van Dyck, represents an Anglo-Saxon of noble birth; his thin straight nose, his chin as part of an ellipse, the lips thinner than Van Dyck's master, Rubens, would have painted them—all these parts are in proportion with whole of the oval face.

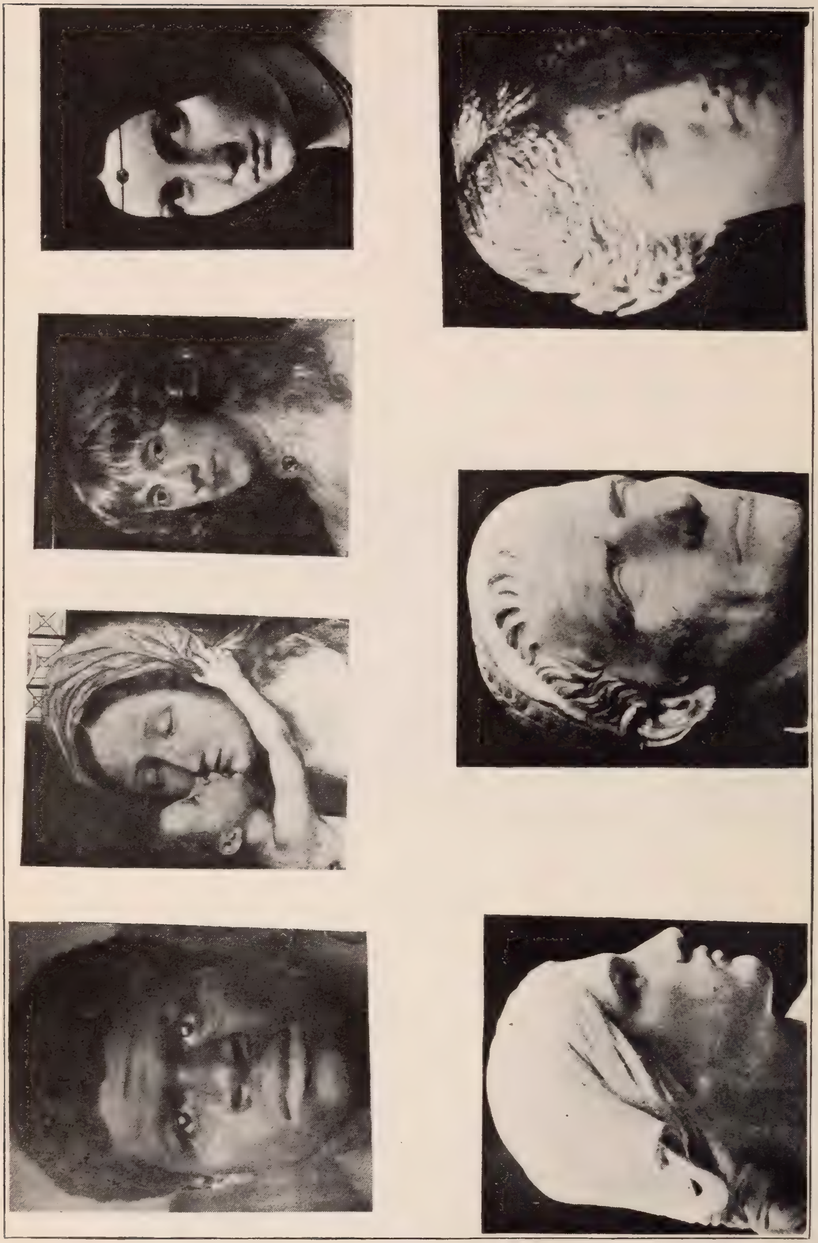

Fig. 4.

"La Belle Véronique," by Leonardo da Vinci, presents another face for attentive study. The expression of the eyes prevents, to a certain extent, our appreciation of what the Greeks taught to be purity of line. However, if we can forget for an instant the hypnotic expression of the eyes, and compare the strongly outlined head and neck, united in perfect harmony, with the bust, then we can understand why this woman in her time was called "The beautiful Veronica," and considered worthy of the brush of one of the greatest masters of the Renaissance.

"Joan of Arc," by Chapu, the French sculptor of modern times, gives us the type of a French peasant girl who lived in a critical time. The nose and chin have no refinement, but they have determination. The lines of the mouth are strong, as are those of the other parts of the face.

In the picture of "Cæsar" we admire the classical. His marble face shows in the smallest detail an integrity of line so well in harmony with the character of this great man, of whom Montesquieu said, "Much has been said of Cæsar's good fortune, but this extraordinary man had so many great qualities without a single defect, although he had many vices, that it would have been difficult, no matter what army he might have commanded, for him to have been other than a conqueror, and in whatever country he might have been born, for him to have been anything but a ruler." The well cut lines of the ear are in proportion with those of the cheeks, those of the lips with the lines of the eyebrows and the wrinkles in the forehead. All these lines are well marked, as they should be and in proportion with the sharply traced contour of the head and neck.

In the Venus of Milo we meet another excellent specimen of the classic. The absence of sentiment, either love or hatred, in the expression allows us to appreciate fully this remarkable face. Unfortunately the nose has been restored. The lips may seem a trifle full, but if we look at the full crown of the head, the full chin and neck, we must confess that perfection in facial balance has here been obtained.

So much for the first part of my communication, viz., the analysis of the underlying thought of the teaching of normal occlusion in dental balance and facial balance. Notwithstanding that such men as Bonwill and Black in America, Tomes and Dolamore in England, Walkoff in Germany, Zuckerhandl in Austria, I. B. Davenport and

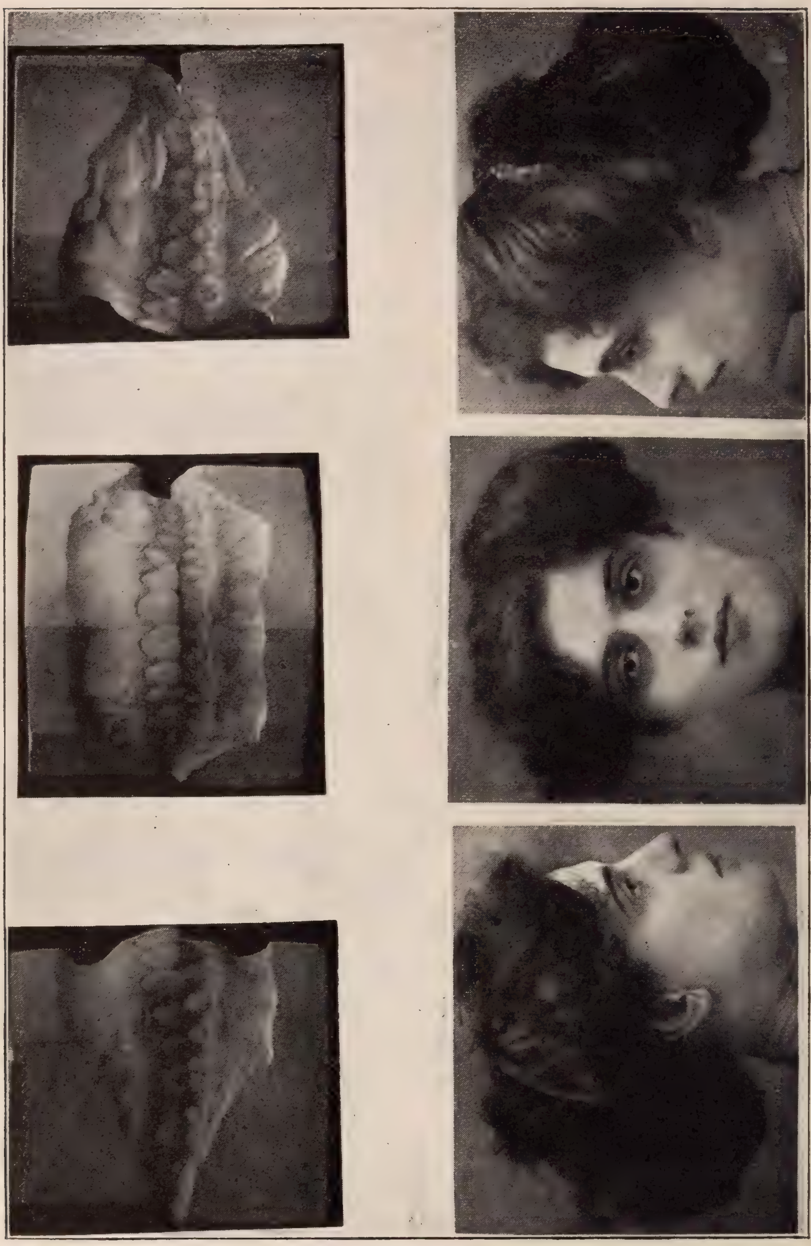

Fig. 5.

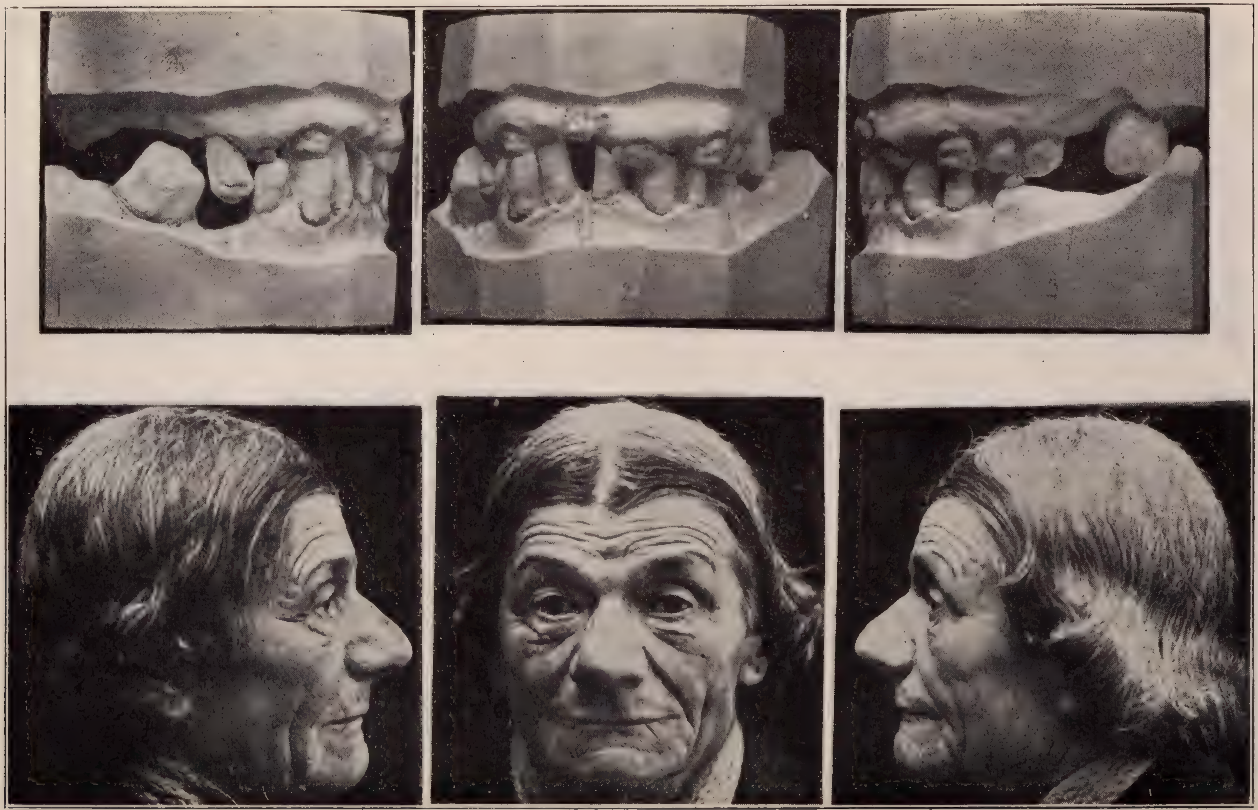

Fig. 6.

Godon in France, have been working on dental balance; be it called as it may, it was left to Angle to combine dental balance and facial balance. He combined them in the theory of normal occlusion. His remarkable book on Malocclusion of the Teeth gives proof of it.

2d. Application of Normal Occlusion:

Now I come to the second part of my communication—the application of the principle of normal occlusion in the practice of orthodontia.

As a consequence of its principle that "the best balance, the best harmony, the best proportion of the mouth in its relation to the other features require that there shall be the full complement of teeth, and that each tooth shall be made to occupy its normal position—normal occlusion," a doctrine of non-extraction in orthodontia was born. To typify in a few words the doctrine, it can be said that it combats strongly the old erroneous idea of the jaw being too small for the teeth, or the teeth being too large for the jaw. Consequently it condemns as a serious mistake the symmetrical extraction of first molars as was still advised by one of the essayists of the last International Congress, and equally condemns the extraction of a cuspid outside of the arch, or an incisor inside of the arch, perfect results now being obtained by expansion of the alveolar process, and by the placing of each tooth in its normal position. This doctrine refutes, it goes almost without saying, the extraction of the two upper bicuspids to relieve so-called "protrusion of the upper jaw," which is now recognized to be a distal occlusion of the lower jaw and which is treated according to diagnosis and without extraction.

To illustrate the application of normal occlusion in the practice of orthodontia, I will have shown a few typical cases where formerly extraction would have been advised, but where we now resort to expansion and equalization of position of the forward-backward and the backward-forward relation of the lower jaw.*

3d. Experiments in Normal Occlusion:

Herewith is finished the second part of my communication, and I will proceed to the third and last part, i. e., a short demonstration of some experimental work in this same field of normal occlusion.

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*At this part of the lecture were shown typical cases representative of the three classes of the Angle classification, as taken from the seventh edition of "The Mal-occlusion of the Teeth."

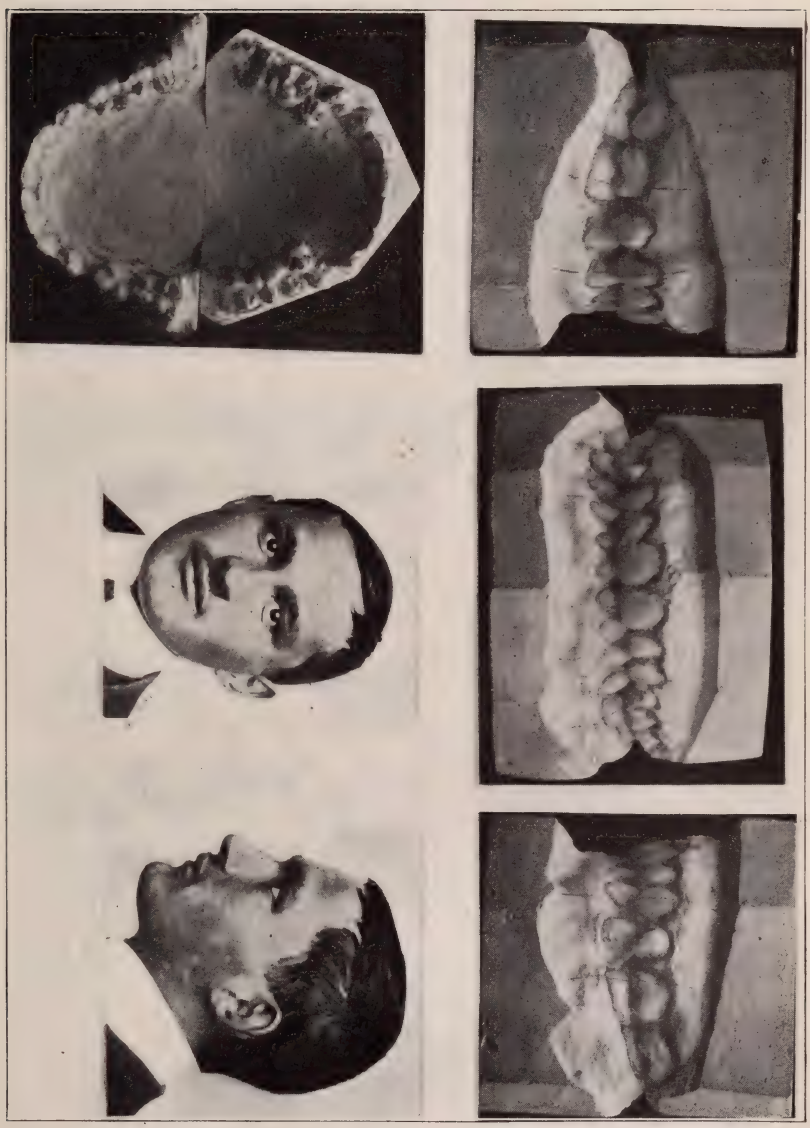

Fig. 7.

In other branches of human knowledge, such as agriculture, veterinary surgery and medicine, where clinical observation has made discoveries, it has been customary for some time to confirm and, if possible, to elaborate on such discoveries by laboratory work. I have in mind the struggle against the phyloxera, anthrax and hydrophobia. Therefore, an effort, be it modest, to sustain by laboratory work the struggle for the conservative method in orthodontia and against extraction, may not be out of place. The laboratory experiments are dental laboratory and photographic studio experiments combined. To those who may think that my stand against extraction is somewhat exaggerated, I will say that my own records can contradict such opinion.

For my experiments I took a number of adults and prepared, for the study of their denture and face a series of six photographs, three for the denture and three for the face. Each denture and corresponding face is photographed three times, the result of each being two anatomical side views, left and right, and one full face. The first experiment refers to the normal—Fig. 5 shows the pictures of the denture and face of a young lady. Although not altogether perfect, the dental and facial outlines may be considered as normal. We observe how the regular outlines of the denture correspond with the regular outlines of the face.

The following three experiments deal with the abnormal. The subjects are named after their origin—the old Italian, the Swiss, and young Italian. (To the series of six photographs I add, for the Swiss and the young Italian an occlusal view of the upper and lower arch.) In the old Italian, Fig. 6, is seen what is called in French, "Le Naufrage Dentaire" (dental shipwreck), and by its sunken-in appearance, the mouth reminds us of what the Germans call the "Greisenmund" (mouth of old man). Of the full complement of teeth of thirty-two but few are left intact, and of these no one occludes properly. The greatly worn down overbite presents a shortening of the denture between the borders of the upper and lower arch. This occluso-gingival distance is greatly shortened. The shortening of this distance finds its repercussion in the shortened distance between nose and chin of the old man.

Fig. 7 represents the case of the Swiss. His denture lacks the support of the four second premolars, as is shown in the occlusal

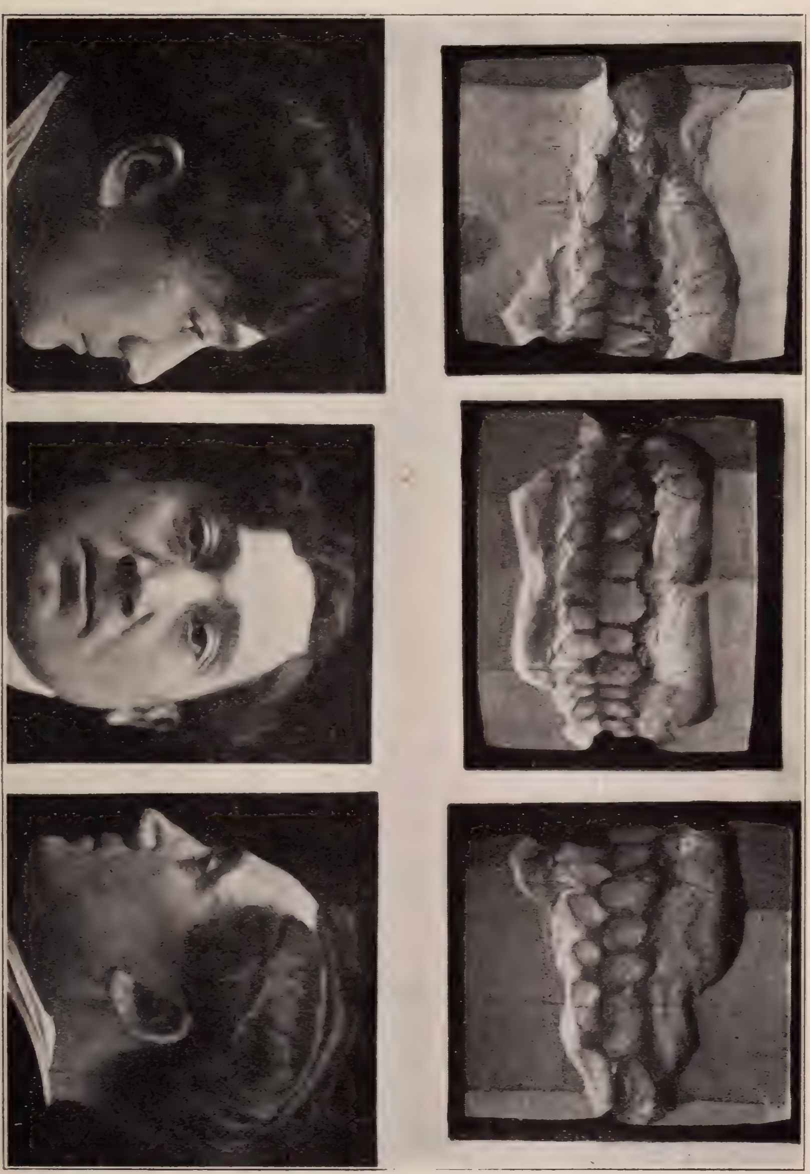

Fig. 8.

view of upper and lower arch. In the upper jaw the two second premolars have moved in the palate to the extent that they do not occlude with the lower teeth. In the lower jaw the two second premolars are altogether missing. The condition in the upper jaw allowed the upper first premolars almost to touch the upper first molars, and the upper front teeth have followed this backward movement. In the lower jaw a similar condition exists. The two second premolars being absent, the first premolars have moved backward under the influence of pressure exerted on them directly and by the intermediaries of the lower cuspids and incisors. How symmetrically the backward movement of the lower and upper first premolars, cuspids and incisors has taken place, is proved by the fact that the perpendicular line that unites the point of proximate contact of the upper first incisors and the point of proximate contact of the lower first incisors has remained intact. Through the backward movement of the upper and lower front teeth, inclusive of the four first premolars, the overbite is shortened; if has become deeper, has changed from the normal one-third of the height of the crowns of the incisors to one-half. There is a difference of sixteen per cent between the present condition and the normal. In comparing the illustrations of the denture with the illustrations of the face, it is found that the mal-position of the front teeth finds its repercussion in a mal-relation of the lines of the mouth. Besides that the upper lip projects over the lower lip, there exists a slightly sunken-in appearance around the mouth, especially between the lower lip and the chin. The shortened overbite has contributed its share to this mal-relation by producing the curling over of the lips and by shortening the distance between the nose and chin. It is shown in the full face.

Fig. 8 shows the illustrations of the young Italian. This person could have had the benefit of the full complement of teeth, normally balanced, had not one of the premolars on the right side of the lower jaw been missing. The lower second premolar in fact, as is seen in Fig. 8a (occlusal aspect of upper and lower jaw), has grown lingually to such an extent that it has no function with the upper premolars. The first lower premolar on that side is in proximate contact with the lower first molar, followed immediately by the lower right cuspid, which latter tooth in its backward passage, took a position about four millimetres distal to its normal. The second and first incisors in the lower jaw have followed this backward movement, as have also the upper first and second incisors, which is proved by the broken line leading over the cutting edges of the upper incisors. The upper right lateral incisor moved inward in following the inward movement of the corresponding lower teeth.

Here, too, though not so much as in the case of the Swiss, and still less than in the case of the old Italian, the vertical distance between the gum margin above and the gum margin below has been shortened, this occluso-gingival distance has been diminished, but only on one side, i. e., on the right. In the region of the upper first bi-cuspid on the right side the occluso-gingival distance is 2 millimetres less than the distance in the corresponding region on the left side. The repercussion of the mal-occlusion of the right side manifests itself in the face in the right profile. We here observe a mal-relation of the medial lip line, which is broken in an abnormal way; the lower lip extends here slightly beyond the upper lip, and the upper lip lacks contour. On the left side, where the teeth are nor-

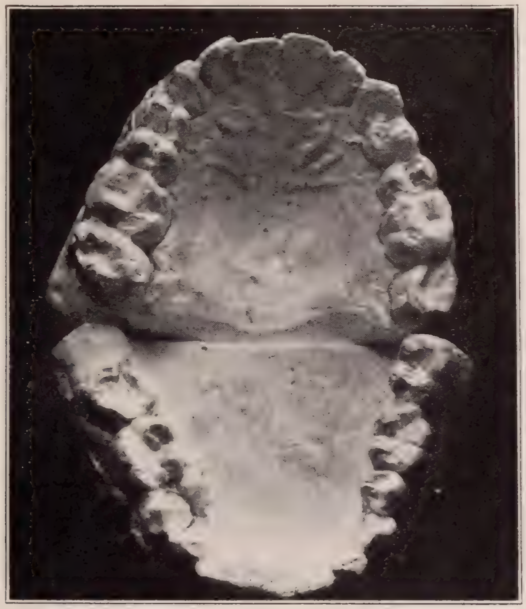

Fig. 8A.

mally balanced, the lip line is normal. The picture of the full face presents in the region of the mouth on the right side a somewhat sunken-in appearance. As will be remembered, it is on the right side that the dental balance is seriously disturbed by the lingual position of the lower first bicuspid.

Conclusion:

In conclusion, I venture to say that the theory of normal occlusion is based upon the law that I wish to define as the law of inter-dependence of lines of the denture and face. That normal denture lines accompany normal facial lines and that abnormal lines of the denture must give a certain degree of abnormality to the line of the face, or, in other words, a disturbance of the features, I hope to have sufficiently proven in the foregoing. This law of inter-dependence of dental and facial lines is, in my opinion, too often forgotten in general dentistry when the dentist, in venturing into the field of the orthodontist, resorts but too easily to extraction of teeth from the temporary set, not to speak of the undue extraction from the permanent set.

The proofs of the law of inter-dependence of dental and facial lines that your indulgent attention has permitted me to reproduce here, can be multiplied by cases of malocclusion treated by any of the numerous specialists of the occlusionistic school and by its followers.

It goes without saying that my modest effort in contributing by laboratory experiments to "Normal Occlusion" can be improved upon, and my sincere wish is that someone may be found who will do so. He will see that such effort, besides contributing in an indirect way to the well being of humanity, by combatting what has been called "Odonticide"—will procure him the pleasure to which Goethe referred when he spoke of the joy of creation of which even a human being can have a small share.*

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*The text given here is not a verbatim report of the conference as delivered, owing to the difference existing between a conference delivered, with lantern slides, and a written communication with illustrations, and also for the reason that, having afterwards been called upon to treat the same subject before two other Societies, I have been able to enlarge upon my original ideas; for instance, the idea of the law of "Inter-dependence of dental and facial lines" ran throughout the conference but was not so clearly defined by me as it now is.

SOME NOTES ON X-RAYS.*

BY DR. C. H. ABBOT, BERLIN.

Mr. President, Gentlemen:

My object in addressing you today is not to read a rounded-out paper on the subject of X-ray work, but as the title implies, to make a few remarks upon some subjects connected with this work, that have attracted my attention during the last year, and to show you a few appliances adapted to facilitate the manipulation of films; lastly, to show you some slides that I have been making as a study in X-ray stereoscopy. I must ask your indulgence as I have been prevented by ill health during the last weeks from preparing a paper at all worthy of my distinguished audience.

At the German Roentgen Congress, held in Berlin last spring, I heard an interesting paper by Dr. Bela Alexander, of Budapest. He is of the opinion that X-rays are by no means skiagrams, or shadow-pictures, pure and simple, but that they produce a distinctly plastic effect, or one of perspective.

To demonstrate this he showed various very interesting specimens, a few of which I have attempted to reproduce, I fear very imperfectly. He claims that the effect is most apparent if the plate is examined with the glass side toward the eyes. The keys and scissors show, I think, pretty clearly the parts lying beneath and those above.

If you will be good enough to examine the stereoscopic diapositives that I will pass around presently, each singly as well as through the stereoscope, I think you will also see a certain amount of plasticity, especially in the orbits and frontal sinuses.

It is a recognized fact that in every radiograph the part nearest to the film or touching the wrapping shows the most well-defined drawing, the parts farther away and nearer the anti-cathode becoming more undefined. This in itself implies a certain idea of perspective. For instance a cylinder X-rayed obliquely will show the part nearest the plate more distinctly with more or less plastic effects, thus doing away with the conception of a mere shadow-picture.

As far back at 1896, intensifying screens of tungstate of calcium were used for strengthening plates. In the last few years these have been improved upon and now a number of such screens, varying in power and excellence, are on the market. As you know, these serve the purpose of shortening the length of exposure to an almost incredible extent. They all, more or less, contain the element Wolfram in various combinations and applications. The sensitive glossy layer must be in absolute contact with the plate or film. To obtain the shortest possible exposure *two* screens can be used with the photographic plate or film between them. For my practice I had a piece of screen cut up into various pieces corresponding with the different-sized films. The screens should be carefully brushed with a fine photographic brush every time before using. The time of exposure can be reduced by this means from a fourth to a twenty-fifth of the ordinary time, according to the quality of the screen. I am informed that the screen called "Gehler Folie," and manufactured by Seiffert & Co., Hamburg, is by far the best, as the surface is the smoothest. The action of the screen is attributable to the bluish fluorescence emanating from the Wolfram which absorbs the X-rays very intensely, giving them off again to the photographic plate by degrees. So it has been said that should a plate be developed immediately after exposure it would not have absorbed as many rays as after a minute or so. The drawback to all these screens is the lack of contrast and distinctness necessary to produce a beautiful picture; but considering the many cases in which a long exposure is impracticable on account of nervousness or restlessness or danger of nausea on the part of the patient, the intensifiers are certainly a great advantage, as the results are generally clear enough for purposes of diagnosis.

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*Read before the American Dental Society of Europe, March, 1910.

It might interest you to see a couple of film-holders for dental purposes devised by Cieszynski. The one with a cork piece is meant to be held in position by the teeth, which of course is a great advantage. It does not, however, seem to protect the tissues from the irritation caused by the lower part of the film.

The other appliance seems to me rather complicated, although ingenious. The film is caught between the holder and the springs and laid over the rubber cushion which after insertion is blown up, forcing the film up against the palate. The air is then let out through the little vent in the stop-cock.

I have not tried these film-holders much so cannot give an opinion as to their value.

A very simple device for testing the hardness of X-ray tubes is the little Beez scale, which it may interest you to see. It can be tacked onto the fluoroscope and shows by the number of letters visible the degree of hardness of the tube.

The subject of X-ray stereoscopy has interested me a great deal lately and I have been making a number of experiments in that line as I think that in certain cases it can be of great value:—for instance, in determining not only the breadth but the depth of destruction of bone caused by abscesses, pyorrhea, or necrosis, or the size of the antrum or frontal sinuses, also the position of roots, especially of the upper molars, unerupted teeth in regulating cases, etc. My first attempts were made with the prepared specimens of skulls and bones, and you will see that much clearer pictures can be obtained from such specimens of skulls than from the living subject, as the living tissues, and especially the circulating blood are great hindrances to the production of good pictures. On the stereoscopic diapositives I have marked those taken from life and you will see the great difference. The two stereoscopic-radiographs of the skull and frontal sinuses were taken with the intensifying screen with an exposure of from five to seven seconds. They no doubt would have been clearer if taken without the screen, but would have necessitated an exposure of at least three minutes apiece, which for each stereoscopic picture means six minutes, a process to which I did not care to subject my servant, who played the part of patient. You know that stereoscopic radiographs cannot be taken simultaneously as in common photography, but the plate or films must occupy successively exactly the same position, and this is where the great difficulty lies in doing this kind of work in the mouth. These specimens are only a beginning and I hope at some future time to show you something better. To obtain stereoscopic X-ray results the tube must be moved to a certain distance from the median line on either side, and these displacements vary according to the distance of the photographic plate from the anti-cathode, also according to the thickness of the object to be taken. The side of the object that is to occupy the foreground in the stereoscopic picture should be touching the plate. This fact I did not realize in taking my first whole-skull picture, where the skull faces the tube, hence the rear-view effect. A table giving the displacements, according to Albers-Schönberg, is at the disposal of any of the gentlemen whom it may interest. In his book Albers-Schönberg maintains that not only a lateral but a rotary displacement of the tube is necessary, as the axis of the rays should in both instances be directed onto a fixed center in the object to be stereographed, an assertion which is of course entirely logical.

But, as I hope to have shown you by some of these diapositives, I hardly think I could have done better had I used his rather complicated apparatus. For the rays emanating from the point of focus on the anti-cathode, and spreading fan-like in all directions, are pretty evenly distributed, even if the axis does not pass directly through the aforesaid center of the object, and sufficiently strong rays are sure to strike it.

The efforts of X-ray tube manufacturers are being directed more and more toward increased simplicity of construction as well as protection for the operator. I hear that in England and America tubes of lead-glass with ordinary glass windows are being put on the market, but I have not yet seen any of them. It seems to me, however, that the new Bauer tube will be hard to beat in these points. It is being manufactured of strong lead-glass, almost entirely impervious to X-rays except the small convex window of plain glass opposite to the anti-cathode, which transmits the most powerful rays. This window being comparatively very small permits the use of extremely thin glass, which is known to offer the least resistance to the passage of the rays. The outside of the tube is blackened to shade the eyes from the disturbing fluorescence of the tube. Besides this, the anode and anti-cathode are combined, which simplifies the internal structure. Lastly there is an attachment consisting of an iris diaphragm, made to fit onto any of these tubes. This is a distinct advantage as only one is needed.

In order to give you an idea of the value of X-rays in the ordinary dental practice, it may not be uninteresting to hear a rough statement of the cases in which it has proved of use in our practice during the past year:

Cases of pulpless and abscessed teeth	76
Cases of pyorrhea	20
Cases of unerupted teeth under deciduous teeth	11
Cases of impacted teeth	12

Cases of third molars	22
To ascertain destruction of roots under caps and bridges	26
To ascertain calcification of canals	2
To determine the presence of pieces of roots after extraction	2
To determine fitness of roots for crown and bridge work	10
To examine amputated roots	6
To locate places where roots were drilled through at the side	4
To locate broken-off instruments	3
	194

I will now ask you to look at one or two diapositives on the screen and then attempt to show you two skull-pictures in stereoscopic projection. This is akin to the so-called plastograph pictures of street scenes which came out a few years ago. These are called anaglyphs and consist of the two superposed radiographs, one photographed in orange-red, the other in blue-green. The blurred appearance to the naked eye is caused by the difference in the two pictures brought about by the displacement of the tube. If you will look through these red and green spectacles (green right, red left eye) I hope the plastic effect will be apparent. The adaptation of this process to radiography was first made by Professor Levy-Dorn, probably Germany's most distinguished X-ray specialist, at last year's Roentgen Congress in Berlin.

I thank you for your kind attention.

PROCEEDINGS OF SOCIETIES.

THE ILLINOIS STATE DENTAL SOCIETY, FORTY-SIXTH ANNUAL MEETING, SPRINGFIELD, MAY 17-20, 1910.

DISCUSSION OF DR. F. B. NOYES' PAPER, "THE INDEX OF PERSONALITY."

DR. J. K. CONROY, Belleville:

Not having had sufficient time I do not feel able to do justice to this paper. It should have been in the hands of those who are to discuss it a month ago instead of two or three days. When you take into consideration the fact that the general practitioner is called upon to discuss a paper that deals with histological structures from foetal life, it requires considerable study and thought, in order to bring out an intelligent discussion. I will have nothing to say about the slides dealing with histological structures as they are based on facts, but the subject of occlusion is something that very few of us properly understand, and the doctor is quite right in his statement in this regard. The sub-periosteum is one of the controlling factors that we come in contact with in the movement of the teeth. It is, I might say, like a piece of rubber. When the tooth is moved it also moves, and the rebuilding of the different kinds of bone takes place beneath the sub-periosteum.

As to the proper line of occlusion, having followed to a certain extent the practice of orthodontia, I do not believe it can be relatively determined until the teeth are placed in what you would call the proper alignment. In starting to correct a case of mal-occlusion I have found that I did not know where I was until I had the teeth lined up, and have found then by taking a photograph with the lips closed, that you have a strained condition of the muscles of the face, which shows one of two things, that the proper line of occlusion was not established, or that the movement of the teeth was too fast to permit the muscles of the face to develop as the teeth were moved, establishing what might be called a prognathism. It also seems to me that one of the slides shown, that where the development takes place back of the deciduous molars, that there would be no room at all in the jaws to contain the permanent teeth when they erupt. Now in cases of mal-occlusion there already has been a great deal of damage done before the dentist sees the child. What are we going to do in the small places, where there is no orthodontist? I listened to the discussion of a paper less than a year ago by a member of this Society, who stated that the parent was the guardian of the child, and that you, as a professional man, had a right to extract a tooth if the father desired it, just exactly the same as if you had gone to a corn doctor to have a corn removed. As long as that condition exists dentists are not going to give the attention to cases of mal-occlusion that they should.

There are many causes of mal-occlusion of the teeth, but outside of the eruption of the teeth, the causes are in most cases in my opinion, traceable to the presence of adenoids, or enlarged tonsils, and if the tonsils are enlarged the dentist should have the parent consult a rhinologist, as very little good will be accomplished where the proper breathing is obstructed by these abnormal growths.

I trust that the profession in general will take more notice of these conditions that exist in a large percentage of our young children. I thank you.

Dr. J. A. Burrill, of Chicago:

I want first to compliment the program committee on their choice of a man to present this subject before this society, for in my opinion we have no other so well equipped, with so much of the scientific knowledge necessary for the proper presentation of this subject as is Doctor Frederick B. Noyes.

He has purposely, I think, forgotten methods and confined his paper to points of very much greater importance and interest to you, in that you must know these things that he has told you before you can intelligently apply methods of any particular type whatsoever, and accomplish satisfactory results.

The essayist has pointed out to you how misdirected forces and influences produce conditions of mal-occlusion, marred personality and deformed faces. It is your duty and within your power to recognize these influences, and only through you as general practitioners, can these influences, which produce deformities of face and jaw, be combated, whether they be physical or pathological.

He has shown you how, in the natural development of the teeth, in their crypts, a mechanical force is exerted, stimulating natural bone development. He has also told you how this force, if misdirected, will produce an abnormal result. He has told you that we, by exercising a little skill, can mechanically produce a stimulus to cell activity and bone development.

Now, when we can recognize the conditions which produce mal-occlusion and marred personality; when we, by mechanical force, can produce cell activity and bone development, why should we wait until the teeth are all erupted in mal-arrangement, and nature has been prevented in her efforts to produce a normal individual, before we interpose the skill, we know we have, to prevent it? In these conditions, as in all diseases, we must begin our work at the inception of the disease, if we hope to accomplish the best results. We must see these patients when they are very young, during the period of greatest dento-facial development, or perhaps during the transition from the deciduous set of teeth to the permanent ones, and with the slight assistance we can give, nature can, in most cases, produce a normal individual, in so far as the face is concerned, at least.

There are many things we must take into consideration before we can apply any methods, and these things are the causes which produce mal-conditions. And right here I wish to take issue with the essayist when he says, "The mal-locking of the first permanent molars is accidental." It is not accidental, but the result of a long train of wrong influences which have been working for many days, and even months, and which, if recognized at the proper time, can be overcome, so, instead of the mal-locking of the first molars, the accident is the misdirected forces which should be recognized at the proper time. The pathological conditions of which I speak, are the enlarged adenoids and faucial tonsils, which are very common among children in our climate, and I think I am safe in stating that a large majority of mal-occlusions are produced by these pathological conditions. I can think of only one other cause which can come anywhere near producing the same number of mal-occlusions, and that is the decay and loss of deciduous teeth.

When we come to the matter of producing these forces to stimulate cell activity and bone growth, what forces shall we use? I want to call your attention to the fact that it has been proven to the satisfaction of the men who are making a specialty of this kind of work, that the best possible force you can exert is a very slight force, but one that is working all the time. A force that is great enough to produce inflammation and pain is too great, and should not be used. We want a force that will work constantly and then see that it is exerted in proper directions, a gentle force as near like the natural force exerted by a developing tooth in its crypt as we can produce.

The jack-screw is too positive a force. Movement must take place when the nut is turned, and then only, and no more movement is accomplished until that nut is tightened again. Let me illustrate here the force which I think is best to use. A seed has sprouted underneath the hard sunbaked surface of the earth and that little stem is growing slowly and gently, but never ceasingly and soon breaks through the surface of the ground, sometimes displacing quite a large clod of earth. Would there be enough force in that small plant to move that clod if exerted in the time it takes to tighten a nut on a jack-screw? What would become of the plant if that force were exerted in so short a time? Just what happens to your anchorage very often in the use of a jack-screw. Your anchorage is displaced. The only way we have today of producing this ideal force is by means of the gentle spring we can get from wires, or the elasticity of rubber.

Doctor Noyes has very carefully shown you by the use of his slides, how the teeth in their crypts, as they erupt and push their way into position, exert a widening and lengthening force upon the bones of the jaws. If this force is lacking a condition will result which is recognizable even before the temporary teeth are lost. Just prior to the loss of the deciduous incisors, the natural development should have produced spaces between them of considerable width, and just so sure as that space is lacking at that time, so sure you may be that the natural forces of development have not been working properly and you will have mal-relation of the permanent incisor teeth when they erupt. Why? Because up to that period the normal development of the teeth within the jaw should have expanded it beyond the width of the deciduous teeth. The result that such a condition will produce is the loss of contact or a slight overlapping of the teeth. A cog has slipped, and it is surprising how many dentists today will say, "Let is alone, nature will take care of that condition in time." They have not recognized the cog that has slipped, but nature is deprived of a force which she cannot regain and a force upon which she must depend to produce a normal individual. This condition is always progressive, for as the teeth erupt between the ramus of the jaw and those teeth already erupted, they exert a forward pressure on those teeth and cause a greater overlapping where the contact point is destroyed. Thus you will obtain an arch that is narrow, due to the fact that the incisors are overlapping.

The retention of the teeth after they have been regulated, is one of very serious concern, and regulation is useless if not followed by proper retention continued for sufficient length of time. It is not, however, always necessary to have the occlusion absolutely perfect before retention. If you have carefully studied the relation of the teeth and the influence of the inclined planes when the jaws are closed, and find that the influence is being exerted in the proper direction, nature will do the rest if you but maintain what has been gained and have removed the conditions which originally produced the mal-relation. It is impossible to widen an arch considerably without changing the occlusal plane of the molars and bicuspids, but that fact does not need to concern you seriously if you have not tipped them too far, simply because you have applied a mechanical stimulus which will stimulate cell activity and bone development which will carry the teeth into the proper occlusal positions.

In closing I wish to say that we are very much indebted to Doctor Noyes for the study he has made into the embryological and developmental conditions of the jaws and face, and I take great pleasure in thanking him for the knowledge he has gained by his personal research and given to us.

DR. GRAFTON MUNROE, Springfield:

After hearing the paper presented in such an able way by Dr. Noyes, and seeing the beautiful lantern slides which have portrayed so many of the possible changes that can be brought about by the educated and skilled orthodontists—perhaps the report on Dental Art and Literature of a recent date—which spoke of the "Rooster Orthodontia" might be changed to some more fitting title. There is no specialty engaging the time of professional men that has allied with it more elements of scientific study than Orthodontia, and none that will develop the personality of the operator more than this. Comparative Anatomy—specially cranial anatomy; the whole province of the rhinologist; the whole realm of facial art, and the wonders observed in the movements of teeth, calling forth the studies in histology and pathology—give it right to the claim even of a distinct profession. Facial deformities are not always apparent to a casual observer, but the human face is often marred in its approach to the ideal by deformities due to mal-position of the teeth and many children of the middle and better classes early in life come to realize the conditions of their facial irregularities. However, I am a little slow to acknowledge that the personality of children is stunted by the appearance of the teeth. I am rather inclined to think it developes a reasonable pride to have the irregularity corrected and stimulates them along a line of patience that is one of the highest qualities characteristic of any personality. No true parent would goad a child with being stupid, even admitting that their personal appearance was not beautiful. The fond parent clings to the club-footed child as much as to the well-formed. It has been a most pleasing thing to see the children watch and remark on the change in the positions of their teeth, and recently a surgeon was called upon to remove the appendix from an orthodontia patient under my care, and the surgeon remarked on her patience, and she replied that she learned that at the dentist's office. Some of the brighter children I have been fortunate enough to have come to me for care are those who have needed corrections of malocclusion. The man who does anything in Orthodontia must be a lover of children, or, I might say, should have children of his own, or both. The conditions which bring about mal-positions of the teeth may be variously determined. Some of them are neglect to have removed the abnormal growths which interfere with breathing, and retention of temporary teeth—sometimes family traits are evidenced in mouths—my aunt, my father, my oldest brother and my sister as well as myself all have large spaces between centrals. Dr. Noyes has given us beautiful descriptions of face development and growth; it has helped me much in this description—I believe it has been useful to all of us. I believe he is right in his claim that Orthodontia is distinct in itself and has a separate place, but he has also said well that the two should keep in close touch, for by so doing we will render better service to our patrons by preserving more useful occlusion that might not be maintained if the uninformed and thoughtless general practitioner extracted teeth to let others come in, as it is so often urged. I believe then that the specialist in Orthodontia can be eminently helpful to the general practitioner and they should be co-workers together for the common good of all.

Dr. Edmund Noyes, of Chicago:

I want the privilege of saying a few words in this discussion. One gentleman yesterday mentioned the fact that in a certain business office in Chicago the manager attaches so much importance to the teeth as an index of ability, or was so sensitive to the ugliness of bad teeth, that he makes the possession of good teeth a condition of employment, and this is typical of the fact that a continually increasing number of people are sensitive to facial deformity or ugliness, and consequently are oftener seeking the services of orthodontists, and bringing the children to them at an earlier age. There is also an increasing unwillingness to tolerate any unnecessary display of gold in the visible teeth.

In an interview published a few days ago in the *Chicago Tribune* a well known dentist expressed the opinion that orthodontists are now able to change the form and expression of faces to such an extent that they will not have the form nor express the mental and moral characteristics typical for that individual.

The cases in which this is done are the ones that relapse, and the result obtained does not prove permanent. It is a great mistake to regard the work of the orthodontist as an interference with nature's plan for the growth and form of the face and the arrangement of the teeth; on the contrary its purpose is to assist nature, and to prevent or correct deviations from the normal type for the individual.

The purpose of the paper, I take it, is to call attention to the urgent necessity of recognizing these conditions early, before the features are formed. The forces of occlusion are potent influences in the formation and development of the face, and if you allow the face to become developed to as great an extent as it is by 12 or 14 years of age, it may be impossible, although the teeth may be brought into the proper relation, to bring about the normal development of the face, and in that case you may have arches which are not right, but which would be right if the face could be made to grow to its proper type, the opportunity for which has been irretrievably lost by the delay. I think it is impossible to exaggerate the importance of this. There is another element that comes in. Some of these mal-occlusions are the result of bad habits, and by the lapse of time bad habits of lips or teeth or the position of the jaws may become so fixed that they cannot be corrected. I think Dr. Angle said that one case relapsed and he replaced it nine times, simple because the bad habit of lip position caused a recurrence of the mal-position.

Dr. J. P. Buckley, of Chicago:

I rise not so much to discuss the paper as to say that I think I voice the sentiment of every one in this audience when I say that we are all glad we had such a large "noise" on the inside of this tent, for had our essayist not been larger in mind and intellect than he is in stature we could have heard nothing but the noise outside. (Laughter).

I want to congratulate Dr. Noyes on the paper, and also Dr. Burrill, who has emphasized so many points made by the essayist, all of which are new to me, and which I did not catch so plainly when the paper was read.

Dr. Noyes (closing the discussion):

It is said that Demosthenes, famous Greek orator, used to put pebbles in his mouth, and go down on the sea-shore and talk. I wonder what he would have been if he had had a chance to talk in this tent.

Dr. Burrill in his discussion disagreed with the statement that the relation of the first molar was accidental, and I am glad to agree with his correction. Nothing in the universe is accidental, and in that sense this relationship cannot be so considered. There are causes back of such relationship, and the development of adenoids, which the Doctor emphasized, is one of them. That is so well known that we can explain what otherwise might be considered as an accident, and the word "accident" must be taken with considerable salt. I thank you very much for your attention.

DISCUSSION OF DR. PECK'S PAPER, "A GOOD SET OF TEETH ONE OF THE MOST IMPORTANT ATTRIBUTES OF MAN."

DR. C. P. PRUYN, Chicago:

We have listened to a classical address, a delightful literary production. We are servants of the public, but we do not always realize the relation we bear to the public. We are Doctors, and that term means teachers. To teach this subject means to take some time, and make some sacrifices. We often say to the people who employ us, "Do all you can to keep out of the hands of the dentist by keeping your teeth clean." The dentist, physician and lawyer are necessary members of society, but do all you can to keep out of their hands.

It would seem like carrying coals to Newcastle to have such an address delivered here, but I can see possibilities of great good in it. It has been said by someone, tell me what a man's thoughts are and I will tell you what manner of man he is. Someone else has said, tell me what a man does and I will tell you what he is. We may also add, tell me what a man eats and I will tell you the manner of man he is. Another says, tell me how a man eats and whether he thoroughly masticates his food and I will tell you how much physical strength he has. Deep breathing, exercise in the open air, and proper use of food are the things that are emphasized today.

Mr. Horace Fletcher has done a wonderful work, and it seems strange that we should wait all these years for a layman to present to us the necessities of thorough mastication of food.

There is a certain set of men who have been emphatic in their teaching of anatomical articulation of artificial teeth, or what is called three point contact, making it possible to get thorough and genuine service out of artificial teeth. We have one member of the State Board who is so saturated with the idea that he does a wonderful amount of teaching to the recent graduates, who come before him, so that it is known to the applicants, who come before the Board that they must be familiar with three point contact.

We feel that while we are doing the work of the State Dental Examiners, we are engaged in the work of teaching, just as surely as if we were lecturing in a college.

Speaking of food, during the past two decades there has been placed on the market a great variety of so-called breakfast foods, and much of which is trash. Without wishing to advertise any particular breakfast food, I wish to say that in my opinion the best breakfast food on the market is shredded wheat.

For the last three years boiled wheat has been my breakfast food. In wheat you get everything to build up the system. I go to the seed store and purchase half a bushel of fine seed wheat at a time, such as the farmer sows in the ground. Then I have some of it cooked twelve to eighteen hours. Our method is to put it in a double cooker for one hour or two, and then put it in the fireless cooker until the next day, and serve it just as you do any of the breakfast foods. We cook up enough at one time to last a week. Then all you have to do each morning is to warm it up, and the last part of it is the very best. It is the very best food I know of for constipation. The husk, or cover of the wheat kernel, is sufficiently coarse to give the bowels something to do, so that it increases the peristaltic movement of the bowels and in that way greatly assists in digestion and assimilation. Another advantage is that is cannot be swallowed until it has been chewed a long time. In that way a thorough ensalivation of the starchy products of the food takes place, and the natural juices of the mouth accompany the food into the stomach, so that the stomach digestion proceeds very much more normally than if there had been less mastication.

Dr. Geo. W. Cook:

The essayist speaks of us as being specialists in properly forming an ideal physical system through the teeth, but he lays considerable stress also upon the ideal mental conditions, as important adjuncts to the proper physiology of the human form.

One of the greatest attributes of man is an ambition to be better than what he already is. If he has got this quality, let it be physical or mental, he will surely be better in the eyes of someone, or, perhaps, in the eyes of many, and all that can be contributed to make an individual feel that he is striving for a better place in the world, will contribute to his happiness. The ideal physical individual with beautiful pearly teeth, is not beautiful, if that individual does not have that something that exists internally which we call character. If one has all the physical attributes of an ideal individual and has the stamp of sincerity fixed with it, he is pretty surely an ideal individual, so far as his relation to men is concerned. Yes, a good set of teeth is one of the important attributes of man. I would not say the most important.

Since we recognize that the teeth, when sound and in proper relation as to form and texture, are a great attribute to man, then what do they do to contribute to the betterment of the individual?

From an ethnological point of view, as well as from a biological stand point, man's teeth form one of the physiological factors in which his physical condition is assisted to a higher standard of perfection. In all living substances, there are twelve chemical elements that must be present, in order that the phenomena of life can manifest itself in a normal way. Physiology teaches us a normal standard in function, if not always in form, and the more conscientiously we study these standards and their variations, the more conscious we are that every part of the body has an intimate and important function to perform, in order that the normal standard of physical equipment is reached in man.

The essayist lays considerable stress on the esthetic side of the dental organs. While our standard of excellency in form and appearance is important, still I do not think that it is the most important factor in man's existence. The example given by the essayist, as to why the man did not want the other eye is no special reason for thinking that an individual should be or should not be more attractive than they naturally are. In modern life, we consider and judge men and women very largely by their personal appearance, but according to philosophy, we can not judge people by their personal appearance, therefore, it is not necessary always to lay such great stress on the beautifying of the face, as it is to make an excellent food crusher. We can not lay aside the mechanical importance of teeth as a great factor in the physical welfare of man, and it is not always necessary in considering the physical characteristics of dental organs, to lose sight of the esthetic side.

Man's teeth in the economy of nature were not intended as great pieces of art, but have been the result of an evolutionary factor in building up and sustaining the physiological economy. They play an important part in the chemical and physical preparation of food which can and does assist the processes of digestion to a very large degree. They also play another role that is many times very deleterious to the best physiological processes in the body, and that is that they hold a large number in and around their surfaces of those parasitic forms of life that are many times injurious to the proper matabolism of the body, which is one of the most important means of securing immunity from diseases.

The essayist has not made any point that a person could attack in such a way as to bring out a strong discussion on the subject of the teeth as being an important attribute of man.. He has said nothing that any one could take exception to, therefore, we could only discuss the subject in a general way as the essayist has done.

Dr. J. N. Crouse, of Chicago:

I hardly know how to discuss this paper, whether to take it seriously or otherwise. If it has any sharp points in it I didn't catch them. I don't know how to discuss the paper because it is too smooth. As I listened it sounded pretty, but I was in hopes I wouldn't be asked to say anything about the merits of the paper. It may suit some people, but it doesn't suit me. I like to see a paper sharp and keen, so that it hits right home.

Dr. G. W. Brunson, of Elgin:

If the paper is so smooth that Dr. Crouse can't hook into it Dr. Peck ought to be congratulated. I want to commend particularly one point, and that is about Fletcherizing. I never realized until the last few years how much influence the proper mastication of food has on our health and happiness, and it was through the influence of Mr. Fletcher that I learned it. Over that great dining room at Battle Creek, where they can seat a thousand people it says, "Fletcherize." If there is any one thing that the dental profession ought to learn it is this. Digestion is mental and dental. I believe that dentists ought to be preachers. We owe a duty to the parents to educate their children to eat their food properly. How often do we have a child come to our chair in such a nervous condition that you cannot do anything. Nine times out of ten that child has been living on sweets. We are like a machine. If you put in the wrong food you get dire results. If you eat too much meat or sugar you are going to suffer. If your stomach does not rebel your kidneys will. If there is any one man in the United States that knows more about scientific dietetics than another it is Dr. Kellogg, of Battle Creek. We don't have to follow him implicitly, but it is well to notice what he says. Cut out your coffee more than once a day, and cut out your cane sugar. Grape sugar comes in our fruits, and is all right, but cane sugar is used in making candy and all that stuff. Please take home to your families and patients this one thing: Fletcherize. Chew for your life.

Dr. Edmund Noyes, of Chicago:

It is important to teach the young children to masticate food well. In this connection I want to say that there are a good many cases of orthodontia that cannot be successfully treated unless you persuade the children to chew, and chew enough to give the necessary muscular stimulation to cause the jaws to grow.

Geo. D. Sitherwood, of Bloomington:

I had the pleasure of meeting Mr. Horace Fletcher last summer at Chautauqua, New York, and I am afraid we are missing the real point in Fletcherizing. He gave permission at his lecture to ask some questions. I sent in this question: "Is it absolutely necessary for a man or woman to have teeth in order to masticate or prepare food for digestion?"

He was a great deal smarter than I thought. He said it was not absolutely necessary to have teeth to masticate or prepare food. He said anyone could insalivate their food and digest it without teeth if they took time enough. He recommends a healthy state of mind, clean clothes, clean body. He doesn't use tobacco, intoxicating liquors, or anything of that kind. It makes you feel better to see him and talk to him. I saw him purchase a sack of pop corn and eat it a great deal quicker than any gentleman in this audience would do it. Was he thinking so much about chewing it? No. He was thinking about good fellowship, or the psychic environment of eating. We are not machines. We enjoy life, and that helps to keep us in good health. It is not all in the chewing of food. I brought some of Mr. Fletcher's books home with me last summer, and have loaned them to several of my friends who are troubled with indigestion. I told one of them recently that unless he stopped using tobacco, and quit his long hours of work that he might read all of Mr. Fletcher's books, practice what he teaches, and it wouldn't do him any good.

I wish to thank the essayist for his excellent paper.

Dr. Truman W. Brophy, of Chicago:

The paper of Dr. Peck impressed me as being specially adapted to the needs of the public. If we were to make extracts from Dr. Peck's paper, and have them published for the benefit of the public at large, I think we would be able to give them the kind of information they need on this subject.

The discussion seems to have drifted into Fletcherism. I had the pleasure of meeting Horace Fletcher at one time, and was quite surprised to see that he would sit at a table and eat his dinner about as quickly as anybody.

I think that Dr. Peck's paper will be remembered as an appeal to the profession, to engage in the education of the public as to the importance of the care and preservation of the teeth. He made the statement that a Boston man recently made a bequest of two million dollars to assist in the care of the teeth of school children. If a man is willing to do that, his name should be placed in our report, and known everywhere. He is certainly a benefactor to his race. I feel that the paper will be useful because it will stimulate a desire on the part of members of the profession to do more for the public at large, and as the essayist stated, there never has been a time in the history of our profession when so much attention was being paid to the preservation of the teeth. Ten or fifteen years ago physicians would administer remedies for patients suffering from neuralgia, dyspepsia, etc., absolutely without regard to infections arising from disease of the teeth, which infections are often responsible for diseases quite remote. That is not so today. The man who is up-to-date will see that the teeth are being cared for. These matters are receiving attention, and the maladies which originated from diseased teeth are now being traced to their true source by progressive medical men.

As the essayist said, we are beginning a new era in dentistry. There is more demand for dentists at the present time than ever before in the history of the world. Today, a few of us visited the administration board of the State of Illinois, at the Capitol, to make an appeal for the appointment of dentists in the institutions of this state, so that the men, women and children who are in those fourteen institutions may be furnished with the services of a dentist. So with the children of the public schools, we see that there is a deep interest being taken in the matter of dental prophylaxis. The most carefully prepared statistics we have ever had have been furnished by our brethren of Germany, showing that 96 per cent of the school children in their country suffer from diseased teeth. In the State of Illinois a great deal of progress is being made in the direction of taking care of the children's teeth, and in other states the work has progressed further.

The essayist this evening has stirred up interest in the subject, so that the school children in the State of Illinois will be cared for and the parents educated in the necessity of caring for the children's teeth. It will become the mission of every member of this Society, and, in fact, every dentist in this state and country to become a teacher. Dr. Allport once said truthfully that the advice he gave his patients regarding oral prophylaxis was far more important to them than anything he did in the way of a dental operation, and we all know he was a man of extraordinary skill. We may be more useful men and women by advising our patients as to importance of oral hygiene. We can do more in that way than we can with all the crowns and inlays we will be able to make in our entire lives.

Dr. T. W. Pritchett, of White Hall, Ill.

I take a different view of this paper from Dr. Crouse. It seems to me it is a beautiful and classic paper, foundational, as it includes everything upon which the structure of dentistry stands.

As to the words of Mr. Horace Fletcher quoted by Dr. Sitherwood, "that man can do very well without teeth for masticating purposes—live long and enjoy good health," is too paradoxical in meaning for us to believe that Mr. Fletcher was talking seriously when he said them. He may occasionally, like the rest of us, have a habit of talking "through his hat." The essayist certainly strongly maintains that the well being of men and women for health and happiness is largely dependent upon chewing well with their teeth.

I want only to say this,—that every argument of the essayist bearing on the *function* of the *natural teeth* for the betterment of health and longevity, have equal bearing with artificial substitutes, when for whatever reason the natural teeth are lost. It needs but little observation to note that the average artificial denture of today as a mechanism for performing prodigious stunts of mastication of beefsteak and the like—is like a perverted definition of "faith"—"the substance of things hoped for but seldom seen."

With improved forms of artificial teeth and up-to-date apparatus by which the jaw movements may be closely simulated, there is no good reason why artificial dentures may not be made in most cases, to perform very good masticatory service.

Dr. Peck (closing the discussion):

The hour is late and you have been very kind to stay for my paper. I want to say to you that I fully appreciate all of the kind words that have been said in the discussion.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

THIRTY-SEVENTH ANNUAL MEETING AT PARIS, MARCH 25-28, 1910.

Discussion of Dr. Anema's Paper, "Lines of Denture and Face."

Dr. W. G. Law (Berlin):

Said the points brought out by Dr. Anema were exceedingly good and were the basis of all treatment in orthodontia, and the more of such papers that were read the better would be understood the necessity for a full complement of teeth in relation to the face. Nearly everybody was convinced of the fact that extraction was not necessary, in fact was a harm, and that when resorted to it was very difficult to get satisfactory conditions both in connection with the face and with regard to the occlusion of the teeth, not only for mastication but for cleanliness. He had found in his experience that cases in which there had been extractions were the hardest to treat, simply because the roots of the other teeth had lost their normal position and there was a lack of binding force. He thought very few people studied the face sufficiently. If a study was made of the faces seen one could learn to diagnose the condition of the teeth fairly accurately from the outside, and one would know very much more regarding the proper position the teeth should occupy. Of course, that involved a a great deal of observation, but that was the case with everything. The higher the ideal of beauty the more successfully would patients be treated. Although nothing in the world was symmetrical there was always a harmonious proportion. He thought habit had played some part in the question. For instance, the child being allowed to lie on one side continually in its sleep could have no other effect than to make one side flatter than the other. Also if one or both nostrils were closed it would have some influence on the type of the face. If one side was stopped for any length of time during the age of development that side was certainly going to suffer. All those things had to be taken into consideration. In a child normally developed, with good habits, properly nourished, the occlusion would be found to be good, the arches good, and the face nearly symmetrical. In the old masterpiece of "Mars" the face was nearly as symmetrical as a face could be made. Dr. Anema had spoken of the backward movement of the teeth in a face which showed lack of contour in the upper lip, but he thought he meant the lack of forward development of the teeth, because the teeth were never any further forward than was shown by the picture.

Dr. George Northcroft:

Said the paper was a very difficult one to discuss, but it had been impressed upon him very much on seeing the pictures that beauty was in the eye of the beholder and that every dentist must have his own individual idea of what the harmony of any individual face should be; and it was quite possible to conceive that a man might consider he had produced the most harmonious result by extraction of teeth. The esthetic side was only one side of orthodontics and he never thought it was wise to lay too much stress upon it. What should be aimed at mostly was the physiological efficiency of the masticating apparatus. One point brought out by Dr. Anema if carried to its logical conclusion would be rather an absurdity from the orthodontist's point of view—that in true beauty it was not necessary to have symmetry. Looking at the subject from the esthetic side only there need be no great claim for symmetrical arches with the full complement of teeth on both sides, but one side might be deficient of teeth and yet remain beautiful to the eye of the beholder. He should like to ask Dr. Anema a somewhat personal question, as to whether he happened to know of the result of treatment of Dr. Mendel's case of the little boy of four and a half years of age. Also he should like to know the interval of time which elapsed between the first photograph of the Class 3 case and the finished case. The dress and style of the patient in the two photographs was so similar that he thought the time must have been extremely short.

Dr. E. D. Barrows (Berlin):

Thought normal occlusion was the keynote of orthodontia because it was only by bringing the teeth into normal ,occlusion that proper facial balance could be secured. It was out of the question, of course, to expect to transform a patient into a Venus de Milo or Joan of Arc, but when a case had been corrected and normal occlusion established the facial line, assisted by Nature, would be brought into the best harmony for that patient. In other words, the orthodontist could only correct the teeth and leave Nature to do the rest. He emphasized the necessity of early diagnosis and asked how many general practitioners could diagnose a case and point out to the patient that unless a certain treatment was adopted one of the malocclusions of the Angle Classification would be developed. It was only by having a thorough understanding of the normal that the abnormal could be detected. As about 90 per cent of all cases were malocclusions he thought it was the duty as well as the interest of the dentist to encourage the branch of dentistry known as orthodontics.

Dr. W. J. Younger (Paris):

Said he heartily approved of what Dr. Anema had said and the principles advocated should be carried out in practice. He himself had always studied the face and had treated the teeth to bring about as far as possible the result desired.

Dr. Anema, (closing the discussion):

In answer to the different speakers who criticised my paper, I beg to tender thanks for the appreciation shown.

Among the interesting remarks made, is one by Dr. Law. It is the one concerning the assymmetry of one of the faces shown on the screen. Dr. Law says the flattening on the one side may be due to a habit of sleeping on that side in youth. When we bear in mind the pliability of the bone in the slow but constant movement of the teeth, and the effect that a continual pressure has on the bone, then it seems possible that a habit of always sleeping on the same side in childhood, might have a certain flattening effect on that particular side.

Dr. Northcroft presumes I said that in beauty symmetry is not necessary. I am sorry to say that the Doctor must have misunderstood me, and I therefore have pleasure in again explaining my ideas on symmetry in beauty. With regard to symmetry we must differentiate between symmetry in the beautiful in art, and symmetry in the beautiful in nature. The two sides of sculptured and painted faces can be exactly alike, but the faces of living persons, no matter how beautiful, cannot be altogether alike. The nose, for instance, is never quite straight which is one reason why the two sides could not be exactly alike. The fact, however, that both sides of the face are not alike, does not exclude beauty, as was proved by the photograph representing the full face of the lady where it was distinctly shown that the left side was less rounded than the right side, but although the face was not exactly symmetrical, no one would say that it was not beautiful.

Dr. Law made another remark about a case where I spoke of the backward movement of the teeth. The backward movement might have been in his opinion, a non-development in the front region of the upper alveolar process. We have probably misunderstood each other, and this may be partly my fault in forgetting to give names to the subjects that served as models for my study. As far as I can understand, Dr. Law's remark refers to the last case of disturbed dental equilibrium with disturbed facial balance. (Fig. 8, Page 1017 and Fig. 8A, Page 1019).

This individual, as the Doctor will remember, was in possession of all his teeth, except the lower second bicuspid which had grown lingually resulting in the closing up of the space between the first molar and the first bicuspid below, and in this way disturbing the normal dental equilibrium. I agree with the Doctor that, in this case, there does exist a certain lack of development in the front part of the upper and lower alveolar process on the right side, due to the malocclusion of the teeth in the region before the first molars. But a backward movement, or more properly speaking, a backward leaning of the teeth and the alveolar process in this region does most certainly also exist. This I pointed out when explaining that the lower cuspid takes a position distal to its normal place, in fact it occludes distal to the upper right cuspid.

As to the 2d Class Case of malocclusion in the temporary set, as shown upon the screen (see Angle "Malocclusion of the Teeth" Figs. 433-438) designated as Dr. Mendel's case, and Dr. Northcroft's question as to the condition of the case at the present moment, I am unable to give a definite answer to this, but I shall be glad to inquire of Dr. Mendel and to communicate the result to Dr. Northcroft.

However, an answer in general may be given, which is that when the cause that brought about the distal occlusion has been successfully combatted, and the teeth retained in their normal position, there seems to be no reasonable doubt that the condition of normal dental equilibrium must continue to exist, as well as the balance that has been produced in the facial lines. The facial balance will even be improved, in as much as the alveolar process under the influence of the normal action of the inclined planes will tend to develop a fuller contour of the alveolar process with a corresponding better effect on the facial outline.

With regard to the typical 3d Class Case taken from Dr. Angle's book, and Dr. Northcroft's question as to the time that elapsed between the beginning and the end of the treatment, I cannot give an answer to the question regarding this case, but I remember another typical 3d Class Case described in the same book, of a young patient of whom it said "somewhat to the author's surprise, in the short space of three weeks, the teeth were moved into their normal mesio-distal relations."

What has been said by Dr. Barrows about early treatment is very true. We know that the movement of the teeth and adjacent alveolar process takes place more easily in children than in adults. When we bear in mind for an instant, the second and third class cases, where the mesio-distal relation of the arches demand a considerable movement of the bone, we cannot insist enough upon the importance of bringing cases early for treatment, for not only can the case be treated quicker, but the cause that produced the condition can be more effectively combatted. Neither should we forget the beneficial result of normal occlusion upon the system of the child, which result is lost if the abnormal condition of the teeth is allowed to continue until the child is grown up.

Discussion of Dr. Abbot's Paper. "Some Notes on X-rays."

Dr. George Northcroft (London):

Had had the privilege of seeing the preparations and thought the essayist had brought out very well one point in the photographs, that the X-rays themselves produced a plastic effect and that a certain amount of depth could be obtained in the pictures without stereoscopic work. At the same time it was a great advantage to have stereoscopic effects in X-ray work. The essayist had referred to the use of intensifying plates of Wolfram. The great advantage which the use of the Wolfram plates seemed to have was to minimize enormously the amount of exposure necessary so that in cases of very nervous children the time of exposure was so short that they were scarcely conscious that anything was being done. In his modesty Dr. Abbot did not refer to his little slide holder, shown last year before the Society, a holder which was quite as practical as the two film holders he had shown that day. He himself was better acquainted with the external work in X-rays, where the plate was placed outside the mouth, and in all large cases, such as skulls, must be taken on full size plates. He wished to draw the attention of members to the work of Witzel, who produced a catalogue of plates just previously to the Atlas Professor Symington brought out. Professor Symington's catalogue was based on dried specimens and not actual living subjects. The anaglyphs were quite a new idea, and he thought Dr. Abbot was to be heartily congratulated on having produced such beautiful pictures. While on the subject of stereoscopic effect he should like to mention the verascope which projected on the screen stereoscopic pictures without the use of colored celluloid films. How far the verascope could be adapted for X-ray stereoscopic work he did not know, but he thought it would be a matter well worth investigating. He could not help thinking that Dr. Abbot's statistics went to show how very useful X-ray work might be made in dental practice and how essential it was in the correct diagnosis of some very difficult cases. One slide in particular showed very clearly the rarifying osteitis which was taking place in the case of pyorrhea in the upper front teeth; the process of dissolution of the bony tissues was most beautifully brought out, and he thought it was really one of the finest slides that Dr. Abbot had shown and would well repay very careful examination.

Dr. E. D. Barrows (Berlin):

Said it had given him much pleasure to listen to the paper and it had been a pleasure to be with Dr. Abbot and see his work. Hardly a day passed in their practice that they did not use the system. A patient passing through Berlin required something done at once and it would take days if the case was sent out of the office. With a new method of taking the skiagrams the longest exposure was 20 seconds and it was not a difficult matter. There were many cases where pulp stones were forming in the teeth and quite recently it had taken some time for him to diagnose a case. He did not know exactly what the trouble was but he found the pulp chamber to be full of pulp stones. It seems to him that the excellent method of Dr. Abbot would enable one in the future to diagnose such a case by the use of X-rays. Practitioners who had not easy access to a good man to take their skiagrams would be well paid by having a small apparatus in their office.

DR. W. A. SPAULDING (Hyéres):

Said that for several years he had been diagnosing difficult cases by the use of X-rays and up to the present had been obliged to send his patients to the hospital to have the photographs taken. He found them of the utmost utility in many cases and felt convinced that if the method could be more generally adopted, especially if one could have it at one's disposal in the office, it would be of very great advantage. He intended to instal the appliance very soon because he felt the need of it every day, and if the apparatus was handy it would be used very frequently. X-ray photographs had certainly given him a wonderful help in determining what to do in certain cases, particularly in the matter of regulating and straightening teeth or determining the position of teeth that had not erupted, or changing the position of teeth where all the teeth in the jaw were not present. In one case where he could not determine whether the teeth were all present or not, by the use of X-rays it was found they were, and a space was made for them and a wonderfully good result was obtained. He was personally indebted to Dr. Abbot for brining the matter forward because he had convinced him more than he had ever been convinced before of the necessity of having the method at his disposal every day.

DR. PAUL GUYE (Geneva):

Said Dr. Abbot had succeeded in arousing the interest of dentists in the question. He himself had been working on the same lines since 1903, and had had the X-ray plant in his office and had used it a good deal. Dr. Barrows had mentioned the possibility of diagnosing pulp stones, and he himself had tried to do that very often, but found it was extremely difficult as it depended very much on the condition of the tube, whether the vacuum was very high or very low. The density of the stones and the dentin was very nearly alike to the X-rays, and it would require a tube of extremely well regulated vacuum to produce a satisfactory picture of pulp stones. Therefore he thought, unless the apparatus had been improved a great deal since he bought his own outfit, it would mean a very great loss of time to try and diagnose pulp stones. One thing that made X-ray work rather difficult in practice was that there was no occasion to use the method every day as a professional radiographer had to do, and sometimes the apparatus remained without attention for several days and when it had to be used it was found that the vacuum had quite changed. He had very often given his work to professional radiographers in hospitals and what they had produced had been almost always of no value whatever. It was work the dentist must necessarily do himself; he must be able to take the pictures at his office, and that very often meant several hours for just one picture simply on account of the condition of the tube. The tube might be tested and found right, the patient brought in and the picture taken, and then it would be discovered that the tube had become too hard meanwhile through having been used and the picture was blurred or the points were not brought out owing to the vacuum being too high. Still he would not appear to be warning people against using it, because he had found it very useful and he did not think he would part with his outfit for any amount of money.

Dr. H. W. C. Bödecker (Berlin):

Thanked Dr. Abbot for his work and the manner in which he had presented the subject to the Society. He did not think that dentists as a whole realized what good work was being done in dental radiography. If medical men could show the results that were being shown by dentists they would be more than delighted. One thing to be considered was that if an X-ray was taken, for instance, of the thorax or the hands or fractured long bones, unless one knew one's anatomy very thoroughly and what one expected to find, very little would be discovered. It required long practice to be able to make a diagnosis. He had shown some X-ray pictures of the alveolus to some medical men and they were surprised when he told them that by the use of X-rays it was possible to make a differential diagnosis between an ordinary abscess and a cyst. It was in fact very easy. In an ordinary abscess, such as Dr. Abbot had shown it would be noticed there was no striking demarcation; in the cyst, on the other hand, there was a distinct line surrounding the apex of the root, a little balloon in the bone. Other minute and fine diagnoses were also possible, such as erosion, and absorption of the apex of the root, and that was of great value in determining whether the chronic inflammation of a root should be treated, whether the apex should be exercised, or whether the case was entirely hopeless. Pulp stones also could be diagnosed, but as Dr. Guye had said it depended upon the quality of the tube. That was where the difficulty came in medical work; for soft tissues one kind of tube was required and for bones another kind. There was a time when it was very difficult to keep a tube exactly in the way it was required. To take a pulp stone it was necessary to go through the entire tooth structure and then differentiate the little bit of nerve; and for that purpose an entirely different kind of tube was required. The light had to pass through bone partly absorbed by inflammatory process to show if an abscess existed. By varying the tube in hardness and softness it was quite easy to get beautiful pictures where there was not too much soft tissue. Prof. Dieck at Berlin had modified the apparatus to such an extent that the axis of light would give the best result, and he had devised mechanical means by which the light could be thrown on the desired point. The tube could be changed rapidly and could be regenerated in a very short time. The tube could be tested in the way Dr. Abbot had shown, and there were other forms of test in which, knowing the degree of hardness required for the case, the hardness of the tube could be quickly changed. It was not a matter of half an hour.

Dr. C. H. Abbot:

In reply, thanked Dr. Northcroft for bringing to his attention the verascope, which he should proceed to get as soon as he could possibly manage it, and perhaps it would be possible to do away with the color business and show some stereoscopic radiographs projected immediately onto the screen. With regard to correctness of diagnosis, he had told Dr. Northcroft on the previous day that he was not at all sure whether the diagnosis that was brought about by stereoscopic radiography was so very correct after all, because it was very hard to be sure that the film the second time could be got into exactly the same place in the mouth. It did not matter so very much if a film was twisted to the side a little one way or the other, because the man who prepared the stereoscopic radiographs could make a readjustment so as to get the right stereoscopic effect. But in film work in the mouth the plane was often changed. The film had to be pressed against the palate to a certain extent and when the second film was put in it was not possible to be certain whether it was pressed to exactly the same degree. While he thought the stereoscopic effects were valuable even if the plane was not the same, they must be more or less wrong. He thought it was safer to use plates if possible. He fully recognized the great difficulty in locating pulp stones and he thought if Dr. Barrows had shown him his case before he killed the pulps and took out the pulp stones a good radiograph might have been obtained. Dr. Barrows had another case which he photographed. At first it was thought there was a beautiful pulp stone, but they did not quite remember that there was a gold filling in the buccal part of the tooth which took the place of the pulp stone, or covered it up. He fully realized the difficulties Dr. Guye spoke of in the different degree of vacuum of the tube, but he had never found it very difficult to overcome those troubles. He had a number of tubes and different screens and a regenerating apparatus, which he believed he spoke about last year in Wiesbaden where he mentioned also the focusing apparatus of Prof. Dieck. He had never seen such beautiful work in radiography as Prof. Dieck of Berlin had done. His own work did not come anywhere near it. But even if very beautiful pictures were not obtained—except in cases of pulp stones where it was very important to have the right vacuum—there was in nearly every case a certainty of getting what one required in a very few minutes. Absorption at the end of the root was a thing that could be detected by means of X-rays very well. He had a number of such cases some of which he showed last year.

CHICAGO-ODONTOGRAPHIC SOCIETY.

A regular meeting was held Tuesday evening, May 10, 1910, with the president, Dr. W. H. G. Logan, in the chair.

Dr. John B. Murphy, of Chicago, spoke on "The Analysis, Clinical Course and Present Surgical Treatment of Trifacial Neuralgia.

DISCUSSION.

DR. GEO. V. I. BROWN, Milwaukee, Wisconsin:

Mr. President and Gentlemen: It seems almost unnecessary for me to say that I esteem it a great privilege to be here tonight. In the first place, it is always a privilege to hear Dr. Murphy talk upon any subject. In the second place, it is even a greater privilege in the light of opportunity for general benefit to hear a great surgeon such as Dr. Murphy address a gathering of dentists such as this. I believe, as our President intimated this evening, that this is a troublesome problem which we have under consideration, and if it is ever ultimately and satisfactorily settled, it will be in America that this will be accomplished. Everybody knows the wonderful work that is being done on the other side of the Atlantic in pathology. We could not get on without it, but many people are coming to know that in matters of the technique of operative skill, the surgeons of America, quite as much as the dentists of America, lead the world. While Dr. Murphy was speaking, my mind was full of the thought that if by any possibility, to his great knowledge and mastery in control of matter, not only pertaining to the nerves and nerve structures, but also the nerve peculiarities of which he has given us such complete descriptive evidence, as well as his great skill as a surgeon and his deep understanding of many other allied subjects, could be added the facts which you all know, as skillful practicing dentists, much greater work could be accomplished than has ever been done before. We, ourselves, do not know certain things in dentistry in the definite way we ought to know them. There are thousands of little points which we learned through practice, and by exchange of ideas, but they are not clearly defined in any book that has been written because there is no such book, and yet these little things often bear evidence of the greatest possible clinical importance, especially to a subject of this kind.

Dr. Murphy has called attention in a very clear and concise way to the treatment of trifacial neuralgia. He has not only pointed out the disadvantages and uncertainties of operations upon the fifth nerve, but has outlined for us a distinct working plan, beginning with the treatment of the peripheral branches of the nerve, and then gradually, as it might become necessary, leading up to the graver operations that are undertaken for the relief of this condition. Operations for the relief of trifacial neuralgia may undoubtedly be overdone. If, before injections or excisions are begun, a more careful and better search for peripheral irritation could be made than has ever been the custom, and if by some means the symptoms and local pathologic possibilities as dentists know them could be systematized and properly applied, I am satisfied that in many instances these graver operations would not be needed. During the last few years I have made it a practice in these cases, whenever I have referred patients to dentists for the purpose of having the pulps of teeth removed, to have microscopic sections made of these pulps and I have been surprised to learn how many times pulps that seemed to be in a normal condition, so far as macroscopic appearances are concerned, when they were properly mounted and enlarged under the microscope, showed distinct fibroid, calcareous and other degenerations with all of which we are familiar, in their grosser forms, but which we do not study sufficiently in their more minute appearances, and in each of these cases, if we take those of marked type, there was, following the removal of these pulps, a distinct difference in the objective symptoms. Sometimes there would be relief for a short time. Usually there was recurrence of pain, but it was quite different pain. In some instances, while the paroxysms were not severe, the patients went through the very common experience that Dr. Murphy has made clear to us, namely: there was a gradual return of the pain. Nevertheless, it has seemed to me that if we could only know how to follow these cases a little farther, we could accomplish something. There is no reason to suppose that there is no othei pathologic process at work, other parts of the nerve may be in a similar condition, and if our differential diagnosis were sufficiently clear, and more exactly developed, we could go a little beyond the pulps of these teeth in our search for the first cause to the end that we might be a little nearer the actual point of irritation, and if that were removed, I do not believe we would care so much about this question of regeneration. I am sure Dr. Murphy understands that there are other important elements active in these cases which, for lack of time, he has not mentioned, and that there is back of the tic douloureux in many of these patients a neurotic condition indicated by a tendency to epileptiform affections and to other neuroses, and as has frequently been demonstrated that almost any operation on this class of cases will sometimes be beneficial for a time. If there is again a recurrence, it need not of necessity be an indication of regeneration of the nerve, but may be because of the original tendency to recurrence. One of the greatest sufferers I ever knew felt the pain in an area at other times quite anaesthetic from a previous resection of that branch of the nerve. Some years ago I removed a considerable portion of the inferior maxillary branch entering through the mental foramen, and put nearly an inch of gutta-percha packing into the canal in the lower jaw the same as one would fill the root of a tooth, hoping it would be retained. Healing occurred beautifully and I had a fine result, but in the course of a short time the gutta-percha packing was forced out through the external tissues. During the last year or two I have had excellent results in the infraorbital region after excision of a portion of the nerve, and obliteration of the foramen by the use of a bur, thus depending upon a growth of bone in that region to give permanence.

In thanking you for calling on me to participate in this discussion, I desire to refer our thoughts back to the original proposition, and state that I hope this may be the beginning of more of these meetings between the surgeons and dentists until we may by closer communication in the future make better use of the knowledge which each of us has in this and other similar directions.

DR. TRUMAN W. BROPHY:

Contributed a written discussion on Dr. Murphy's paper, which was read as follows by Dr. C. N. Johnson in the absence of the author.

Mr. President and Gentlemen:—

When I accepted the invitation of your committee to be one of those to open the discussion of the address by the distinguished surgeon who has honored us this evening by his presence and presented for our consideration, a subject of equal importance to the surgeon, the neurologist and the dentist, I fully expected to be present, but circumstances have arisen since I made that promise which compel me to be in New York on Wednesday morning, but by the kindness of Dr. Johnson, who has consented to read what I have written and place upon the screen a few slides, I will endeavor to show not only some of the causes of facial neuralgia, but the technique of the surgery of the second and third divisions of the fifth nerve.

Without a knowledge of the scientific and practical aspects of the abnormality under consideration which each is supposed to have acquired in the pursuit of his special work, the highest and best interests of the patient cannot be subserved. It is gratifying to the dental practitioner to know that a man who has an international reputation as a general surgeon recognizes, and does not hesitate to declare, that medical men in years gone by, and unfortunately at the present time to some extent, fail to recognize the importance of preserving the human teeth.

He has pointed out clearly that too frequently for a want of a knowledge of dental pathology the physician has not recognized the true origin of trigeminal neuralgia and has directed the extraction of teeth which by no means were in any way responsible for the nerve pain under treatment.

Dr. Murphy has shown that he has been a close student of the development of trigeminal neuralgia and he has pointed out a fact that cannot be set aside, that neuralgia, in a large majority of all the cases in which it appears, is dependent upon an irritant for its exciting cause. He has shown us the process of regeneration of the nerve tissue. There has never been a time in the history of the dental profession when diseases of the teeth and their relation to other diseases received so much attention by the general practitioner of medicine, as they do today.

Neurologists of the greatest reputation do not hesitate to admit that the real cause of trifacial neuralgia, unless it is induced by local irritants, is not understood. We know that neuralgia is a sequel to certain systemic disturbances, such as malaria, anaemia, syphilis and other conditions which lower the vital forces, but we have yet to learn the pathogenic changes, if any, that take place in the structure of a nerve. A statement was made by Dr. Austin Flint, over forty years ago, namely,—"All that can be said of the pathological character of tri-facial neuralgia is that it consists in a perversion of sensibility."

This statement is in accord with views of many of our most scientific neurologists of the present time. It is only just to those holding this view to state that all recognize that local irritants may induce neuralgia.

I believe the exciting cause of trigeminal neuralgia in nearly all cases is *local irritation;* and I further believe that in the greater number of cases in which local irritants are not pointed out, *they exist, but the diagnostician fails to discover them.*

In a book by Professor Henry S. Upson, M. D., Professor of Diseases of the Nervous System in the Western Reserve University, attending Neurologist to the Lake Side Hospital, Cleveland, Ohio, 1908, he states that among the diseases of the nervous system due to dental irritation were the following cases in his practice:

Case 5: Melancholia—Impacted upper left third molar.
Case 14: Hysteria—Impacted lower third molar.

Case 15: Acute Mania—Impacted cuspid tooth.

Case 16: Incipient Dementia Precox—Impaction of all wisdom teeth.

Case 18: Dementia Precox—Upper right third molar.

Case 22: Mania—Impacted lower third molar.

Case of profound melancholia with subconscious sensory reflex in upper incisor tooth.—Impaction of upper third molar.

Case 2: Insomnia—Alveolar Abscess—Lower molar tooth; roots partly absorbed.

Case 3: Renal and Vascular Disease—Multiple abscesses in both upper and lower jaws.

Case 4: Melancholy—Alveolar Abscess—Molar teeth; roots partly absorbed.

Case of albuminuria with cardiac and vascular symptoms. Complete nervous breakdown of five years' standing. Multiple abscesses in both upper and lower jaws.

(Since writing this paper I find that the above is printed in the *Dental Cosmos* for the current month, to which I would invite the attention of all who are interested.)

The frequency of trigeminal neuralgia is due to the exposure of the terminal branches to injury from external causes and to irritants in direct contact with the branches of the nerves. To blows, falls, exposure to extreme cold, etc., we may trace the inception of facial neuralgia, but its most common cause is disturbances resulting from dental lesions.

Diseases of the human teeth are more prevalent than any other diseases known to mankind. Nearly every one has suffered from some form of tooth pain and innumerable patients are suffering from diseases of dental origin for whom a diagnosis has never been correctly made. Irritation of the organic matter of a tooth in cases where the gums have been absorbed and in which the neck of the tooth has been exposed above the enamel, is a fruitful cause of trigeminal neuralgia. Pulpitis, pericementitis, excementosis, crowded irregular dentures, contracted maxillary arches; partial calcification of tooth pulp, semi-devitalized pulps, those in which the pulp tissue in the canal of one tooth root is vital while in the other or others there is little or no vitality; pulp nodules; fractures of the alveolar processes causing spiculae of bone to come in contact with and irritate the nerve, cicatricial tissue which by contracting the soft parts adjacent to the nerve causes tension or pressure and consequently pain; material which in filling teeth roots has been forced through their canals into the tissues beyond; artificial dentures improperly adapted to the alveolar ridges exert pressure on the terminal branches of the inferior maxillary and anterior palatine nerves, thus causing pain.

Dento-alveolar abscesses, the pus from which often finds its way into the inferior maxillary canal, non-erupted, mal-posed teeth, not infrequently cause pain by making direct pressure on a nerve. Tumors and cysts embracing the nerve or pressing upon it may induce neuralgia.

It is apparent to us that 95 per cent of the people everywhere are suffering from diseases of the teeth; therefore, I do not hesitate to assert that *trigeminal neuralgia is induced more frequently by irritation set up by some form of odontalgia than all other factors.* Having pointed out many of the peripheral causes of trigeminal neuralgia, I wish to occupy a little time in pointing out some essential measures which must not longer be overlooked by the medical profession.

What are the most common causes of facial neuralgia? The question may be briefly answered in two words, *local irritants.* And the local irritants which are the exciting causes of facial neuralgia are usually developed as the result of carelessness or lack of appreciation of the importance and value of oral prophylaxis.

DIAGNOSIS.

To make a diagnosis of trigeminal neuralgia it is necessary,

1st. To know the patient's occupation, environment, etc. As to whether he has been exposed to the toxic action of the fumes of phosphorus, mercury or any other influence that might lower his vitality.

2d. To question the patient as to the length of time he has been suffering and as to the location, character and periods of pain. As to how often the paroxysms come, their duration and his opinion as to their cause.

3d. To examine the patient carefully with a view to acquiring all the information possible as to his general physical condition. Has he been a sufferer from specific disease, malaria or lead poisoning?

What is his mental condition? Is he a neurotic? Has he nephritis or any other malady, the sequel of which might be sepsis and lowering the tone of the nervous system?

4th. To make a careful ocular and digital examination of the parts, especially at the point of origin of the pain. The teeth by use of a mouth mirror and fine exploring instruments should be most carefully examined on every surface, even beneath the margin of the gums. The history of the eruption of the denture should be learned, if possible, and the absence of any teeth carefully noted and the date when these teeth were lost ascertained, with a view of determining whether the advent of the neuralgia and the extraction of the teeth was simultaneous. If so, the nerve may have been injured in the act of extracting the teeth, thus inducing the neuralgia. Sometimes small spiculae of bone are forced into the nerve trunk, thus becoming an irritant. Moreover, the absence of a tooth may lead to the discovery of a nonerupted tooth which may be pressing upon a nerve and causing pain. When the finger is carried along the buccal surface of the mandible from the cuspid tooth backward, there will be observed when a little pressure is made opposite the second bicuspid tooth and just below the point where the mucous membrane folds upon itself, a slight elevation. This is the inferior maxillary nerve at its exit from the mental foramen. If, in this nerve we have neuralgia, the pressure of the finger will frequently excite a paroxysm of pain. The same results will follow pressure over the infra-orbital and supra-orbital foramen and in many of these cases there will be an hypertrophy of the nerve which may be distinctly felt.

In such cases I have often found the nerve five or six times larger than the normal size outside the mental foramen, while within the bony canal it was constricted and hence the pain. After manipulating digitally the tissues in the region of the terminal branches of the fifth pair of nerves we note carefully our findings, after which we make use of the most valuable and reliable means at our command with which to discover otherwise invisible and untraceable factors so often the centers of irritation from which neuralgia has its origin. I refer to that most valuable adjunct to the diagnostician, the *Roentgen Ray.* Many obscure and hitherto unknown causes of neuralgia have, in the light of this most positive agent, been placed clearly before our vision. Many cases of neuralgia which were formerly attributed to systemic disturbances are now by the use of the X-ray clearly seen and most certainly known to be the result of a local irritant which after removal, the pain will be terminated.

SURGICAL TREATMENT.

There is no doubt as to the value of deep injections of alcohol in controlling neuralgia and I have found some very gratifying results from its use, although in a large majority of cases in which it has been used the pain recurs in a brief period. In some cases we find the patient to be free from pain extending over a period of many months. Osmic acid is not now used as much as it was formerly. I think, however, these remedies should always be used before resorting to a surgical operation. If a local irritant such as malposed teeth, etc., or an hypertrophy of nerve tissue are the cause of the pain, it is too apparent to require argument that a surgical procedure is necessary.

The treatment of trifacial neuralgia by surgical procedure should not be hastily resorted to. Let it be done only after a careful diagnosis has been made. Moreover, internal medication should be employed when indicated. If the diagnosis points out a local irritant as the cause, this irritant should be removed.

INTERNAL MEDICATION.

The administration of drugs is, with few exceptions, of little or no value. Narcotics will control pain temporarily but they do not cure. If the patient requires treatment for any other malady, we should of course employ it. Tonics are often indicated, but far more valuable is fresh air, sunshine, exercise in the open and proper diet.

It is customary when operating on the maxillary bone or in the performance of operations within the mouth, when of considerable magnitude, to make external incisions to gain access to and obtain a full view of the field of operation. I hold that these external incisions, followed as they are by the formation of scars, are in a large majority of the cases in which they are made, wholly unnecessary. For example, a patient suffering from persistent neuralgia of the second or third division of the fifth pair of nerves, having undergone medication extending over a period of many months with only temporary relief, is taken by his physician to a surgeon for diagnosis and treatment. He decides that a nerve lesion exists and that an operation is required by which to cure the patient. An external incision is made in accordance with the location of the lesion. If of the inferior nerve the incision is made along the border of the jaw, the tissues are reflected up so as to expose the external surface of the mandible, a hammer, mallet and chisel are made use of, the bone is chiseled away so as to expose the inferior dental canal and the nerve removed. A saw is sometimes employed instead of a chisel for the purpose of removing the external layer of bone covering the canal. The wound is closed by suturing and the patient is cared for antiseptically until the wound heals. These external incisions are wholly unnecessary as the operation may be successfully performed within the mouth, proceeding as follows:

A small incision should be made downward through the mucous membrane down to the mental foramen, so that the canal may be entered with a silver probe, then a drill after the form of Gates' dental root-canal drill, exaggerated in size, may be carried into the canal and the contents thoroughly removed.

In order that the nerve may not redevelop as it is inclined to do, the canal may be drilled out so as to freshen the surface of the bone, thus causing an exudate to take place from the freshened bony surface, and the consequent filling of the canal with bony tissue. Experience has taught us, however, that the canal does not always fill with osseous tissue and the nerves will be reproduced in certain cases.

I am of the opinion that there is not more reason for making external incision for the removal of the inferior dental nerve within the substance of the maxillary bone than there would be to make an external incision through the cheek to gain access to the third molar tooth for the purpose of entering the pulp chamber and removing the pulp therein.

Abnormal conditions of the second division of the fifth pair of nerves, or the infra-orbital nerve, frequently require surgical operation for their cure. It has been customary in performing these operations to make external incisions for the purpose of entering the infra-orbital foramen to make exsections of the nerve. I have found that equally good results may be obtained by raising the cheek and making an incision over the cuspid tooth, dissecting up the soft parts, seizing the nerve with a tenaculum as it makes its exit from the infra-orbital foramen, carefully dissecting out its branches distributed to the nose, lips and cheek, then increasing the size of the infra-orbital canal by means of a drill, seizing the nerve, drawing it forward, and dividing it, will accomplish the same end that may be gained by making an external incision. The following letter written by that distinguished surgeon, the late Professor Edmund Andrews, A. M., M. D., LL. D., of the Northwestern University Medical School, of Chicago, addressed to me, enters into an explanation why pain, though completely arrested by operation, may recur within a period of two years, and how finally it may be cured.

"Chicago, March 4th, 1902.

"PROF. TRUMAN W. BROPHY:

"My Dear Sir:—In reading your interesting clinic on Trigeminal Neuralgia, I am not clear that I understand fully the late doctrine about the innervation of the tooth—is it direct from a plexus surrounding the root, and not from a dental branch from the fifth pair? Do the supporters of this opinion hold that the plexus derives its sensation from a connection with the fifth pair, or is it believed to be an offshoot from the sympathetic system, like the principal nerves of the digestive system, etc.? What is the accepted opinion about this? Yours most truly,

"EDMUND ANDREWS."

"P. S. I have found much to my surprise that a case could for a year or two, by an incision or avulsion after an operation through the ramus, yet if it relapses, the cure can be repeated by opening in the same spot, detaching the circular cicatrix, closing the trephine hole by cutting around its edges, and twisting it forcibly out, though no trace of the old stump may be found. I have operated several times in the same spot with a year or two of success each time. I have found the plan to be of considerable value in practice, and weak, old patients seem to feel no shock, probably because the incisions are done in cicatrical tissue, which has very little vasculatory, or nerve supply. I don't see any reason in it unless this may be true. The cicatrix may be supposed to be attached in its deeper apex to the stump of the nerve, and in twisting it out it may affect a nerve stretching, or in other words, a hive of operation on the stump.

"I have excised the Gasserian ganglion five times, but other surgeons as well as myself think less favorably of it than formerly. This matter of secondary operations by twisting out the old cicatrices is of importance though it looks at first glance unreasonable. Working in the old cicatrix is eminently free from shock and hemorrhage. Relapses after either primary or secondary operations are very generally, or at least often much milder than original disease; some are permanent cures. E. A."

In answer to Professor Andrews' question as to how the tooth pulp receives its nerve supply and nutrition, I have stated, that the nerve supply is from the fifth pair, although a nerve branch does not proceed directly from the trunk into the tooth canal as works of anatomy teach, but the branches given off from the trunk are distributed to the bony septum between the roots and minute branches are distributed to the pericementum and enter the foramen to be distributed to the pulp. After the removal of the terminal branch of the fifth nerve, there will follow a period of anesthesia. Later, however, this sensation will be restored in the parts, either through small branches of the sympathetic system or possibly by vicarious sensation, is an explanation of the return of nerve function in the part.

I have previously stated that neuralgia is an abnormal condition of nerves, the origin of which it is frankly admitted by distinguished neurologists they do not understand. By some authors it is said to be due to neuritis, inflammation of the nerve sheath followed by hypertrophy or atrophy of the nerve. Such conditions no doubt, are met with, the exciting cause of which remains unknown.

Medicine is said to be, "The healing art in all its branches." This definition is, I believe, correct. I believe the schools of medicine should teach, "The healing art in all its branches." While I cannot confirm or deny the declaration of the committee on colleges of the American Medical Association, that one-half of these medical schools are not well qualified to teach, it is too apparent to require argument that even the medical colleges of excellent repute, not only at home, but abroad with very few exceptions, teach "the healing art in all its branches." The difficulty lies in the fact that each professor in a medical college is a specialist, even the professor of surgery is a specialist, as he specializes on what the ophalmologist, aurist, largyngologist, rhynologist, gynecologist and many others leave for him to do. While the professor of medicine is an internal medicine specialist. Those specialists are so absorbed in their work that the other departments receive but little of their attention, consequently the diseases and injuries of the teeth, mouth and jaws together with many diseases having origin in the mouth, the medical student has no opportunity to learn. Is it the student's fault that after graduating and entering upon practice, that he is incompetent to make diagnosis of diseases of dental origin and become familiar with a class of diseases more prevalent and causing distress to a greater number of people than any other class of diseases known to mankind? No. The fault lies with the medical faculty and the great oversight will be remedied only when the faculty awakens to its full duty and broadens the curriculum of the medical school by establishing a chair in dental pathology with all the breadth and significance the term implies. Not to teach the art of dentistry; this could not be done without adding two or three years to the course, and equipping the college and providing a dental faculty. Having done this, it will have taken an advance step in preparing students to more successfully alleviate the suffering of mankind and the profession will more nearly fulfill the requirements of the definition in endeavoring to make it the "Healing art in all its branches."

Dr. H. A. Potts:

The members of the society are to be congratulated upon having such an eminent teacher as Professor Murphy here this evening. It has been my pleasure to sit on the benches and have arguments of various kinds on this subject and many others driven home in the same logical and concise manner in which he has presented the subject this evening.

In regard to the topic for discussion, formerly idiopathic neuralgia was synonymous with trifacial neuralgia. As Dr. Murphy has said, there are many causes of this disease, but the few which act in all cases probably will never be cleared up. Schloesser has reported one hundred cases of this terrible malady which were treated by injections of alcohol, with one hundred per cent cures. He excluded all cases which were at all capable of being explained by any known pathological condition. Ostwalt, in another series of cases, treated by the same method, reported only ninety per cent cures.

The diagnosis cannot be mistaken if the cardinal points, as mentioned by the essayist, are kept in mind. There is one condition which simulates trifacial neuralgia almost identically, and which must always be looked after or inquired into, and that is post-plegic pain following at times a cerebral hemorrhage, which at times is reflected to the region supplied by the fifth nerve. This lesion is absolutely un-affected by any peripheral operation. As Dr. Murphy has said, the operation is comparatively simple and without danger. Some neurasthenic individuals, particularly those who have suffered a long time, may be controlled and rendered practically insensible to the operation by the use of morphin, which may be combined with chloral and bromides. In my hands, I have been most successful in injecting the second branch, rather than the third, although the foramen ovale seems to lie immediately beneath the point at which you insert the needle. When I say successful, I mean I have been successful in controlling the pain. The nerve is the largest of the cranial nerves, and I think there is no question about the action of alcohol, provided it be injected in the immediate vicinity of the nerve or preferably within the nerve sheath. This, it seems, is quite difficult to do. More than one attempt usually has to be made. From the anatomy and the size of the third branch in particular, it seems to me I have been able to improve my technic in this manner; knowing that the branch of the buccal mucous membrane is given off anteriorly, the lingual branch somewhat posteriorly, and the inferior dental branch distally to the other nerves, in making a number of injections I have noticed that the patients complained of the action of the cocain. That is to say, they have complained of a "funny sensation," possibly beginning in the buccal mucous membrane. I see no reason why the operation should be hurried. We should spend a little time in allowing the cocain to exert its action, finding out what part of the nerve is affected, or finding all of the nerve, provided the injection is not made immediately into the foramen ovale. If the buccal mucous membrane becomes sensitive, I see no objection to waiting a few moments for the cocain to have its effect, finding that out and withdrawing the needle partially and inserting it a little farther backward or a little farther upward. If, at any time, the patient complains of sensation in the tongue, by directing the needle farther backward and downward, if necessary, you will be able to impinge upon the inferior dental branch which goes into the inferior nerve. Another point in technic which I think of some value is, after the cannula has been inserted, to aspirate the small amount of air still within the cannula. I have seen no reference in the literature made to that, but I can see no reason why one should produce a localized emphysema. If the cannula rests in a large vein, it would be rather dangerous to inject a large amount of alcohol. In aspirating the air, if it be in a blood vessel, blood will be aspirated and the direction of the needle can be changed. The dangers which may follow the practice of injecting the second branch are paralyses of the third nerve or sixth nerve, which are in quite close proximity to it, lying in the sphenoidal fissure, not a great distance from the foramen rotundum. At times, the injection is followed by hematoma. I have once experienced that. The transverse facial vessels have also been injured. A little pressure will control it for a time upon the withdrawal of the needle, and in one case, as I turned away to get some collodion to seal the wound, I hardly turned around when the patient had a large swelling of the face, which I recognized as hematoma, which, however, was wholly absorbed. Another time in injecting the second branch, in avoiding the broad coronoid process, I punctured the buccal mucous membrane, that is, passed the cannula through the mucous membrane of the mouth, and, of course, there was some danger of carrying infection in that way, but this danger is slight.

There is one point I wish to make, and it is this: aside from the pleasure of having heard this discourse from Dr. Murphy, it is a stepping stone to higher things. It is being recognized more and more that the professions of dentistry and medicine, each of which has to do with the vital forces of life, cannot be widely separated, and it behooves physicians to learn more about dental conditions, and dentists to learn more of the pathology of the diseases of the mouth, and this getting together for the purpose of discussing diseases, the treatment of which should be common to both professions will certainly end in great good. I feel certain that those of you who have heard this discourse will be stimulated to look up the pathology and anatomy not only of this particular condition, but of many cases which will undoubtedly come to your minds, and great good will follow such work.

Dr. Murphy (closing):

I wish to express my great appreciation of the generous manner in which you have received my paper and to thank you for the marked attention which you gave me.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

THE DENTAL PROTECTIVE ASSOCIATION DEFEATS THE CARMICHAEL PATENT.

It may not be generally known to the profession that there has been a lengthy litigation between the owners of the Carmichael patent and the Protective Association over the validity of the patent. Dr. Harvey N. Jackson of Milwaukee was sued for using the process and, being a member of the Protective Association, he turned the case over to Dr. Crouse, who has defended it to a successful termination. Dr. Crouse has just handed us a copy of the decision in the case, which we herewith publish.

In this connection and at this time it may be well to call attention to the present condition of the Dental Protective Association. During the past few years this association has been more vigorous and more alive than the profession has been aware of. Dr. Crouse, the president, has just informed us that in addition to contesting the Carmichael case there are other cases over which he is keeping a careful watch, and developments in which may come out at any moment. Those who have imagined that the Protective Association is dead are very much mistaken. Dr. Crouse says that there is a substantial fund still in the treasury—enough to take care of any litigation which may legitimately come within its province, and that the members need not fear that their rights will be jeopardized. More in this regard is likely to be ready for publication shortly, and it will be matter which will be of the most vital interest to the profession generally.

The following is a copy of the court's decision in the recent Carmichael case:

IN THE CIRCUIT COURT OF THE UNITED STATES, EASTERN DISTRICT OF WISCONSIN.

John P. Carmichael,
Complainant
vs. } IN EQUITY.
Harvey N. Jackson,
Defendant.

July 9th, 1910.

This is a bill in equity based on Letters Patent of the United States No. 659,206, dated on the 9th day of October, 1900. The date of the invention, as claimed by the complainant, was the 9th day of June, 1899. The patent purports to be for improvements in processes of and attachments for building up broken or decayed teeth. The bill alleges infringement, and prays for an accounting and injunction in the usual manner.

The answer of the defendant denies infringement and avers that the supposed invention was the result of the exercise of mere mechanical skill. The answer also sets up anticipation of the supposed invention by publication in the *Dental Cosmos* in the year 1888, more than two years prior to the filing date. It also avers that said invention was well known in this country, and was in public use and on sale in this country for more than two years prior to said application, and the names of seven dentists are given as having practiced said invention more than two years prior to the complainant's filing date. Numerous references are given to other letters patent, showing that the alleged invention or discovery by the complainant had been anticipated. The process described by the complainant is defined in claims 1 and 2 as follows:

"1. The process of forming an attachment for and connecting the same to a natural tooth, which consists in cutting, grinding, or drilling one or more grooves in a natural tooth; shaping and fitting a base of suitable material to the tooth, and to the groove or grooves in said tooth, and thereby conforming the base to the shape of the portion of the tooth to which it is applied, and also forming a rib or ribs in the base; removing the base from the tooth; next stiffening and building up the base with a suitable material and finally, applying the complete attachment to the tooth and cementing or otherwise securing said attachment to the tooth.

"2. A process of forming an attachment for and connecting the same to a natural tooth, which consists in cutting, grinding, or drilling grooves in a natural tooth; shaping and fitting a base of suitable material to the tooth and to the grooves in said tooth, and thereby conforming the base to the shape of the portion of the tooth to which it is applied, and also forming ribs in the base by pressing said base into the grooves; applying a staple to the base during the operation of shaping and contouring; removing the base, together with the staple, from the tooth; next stiffening and building up the base with a suitable material; and finally applying the complete attachment to the tooth, and cementing or otherwise securing said attachment to the teeth."

So far the invention relates to the product or article of manufacture. There are three claims, the broadest in terms is No. 5, which reads as follows:

"5. An attachment for natural teeth, consisting of a base or inner portion shaped to fit the natural tooth, and provided with a rib or ribs adapted to fit a groove or grooves formed in said tooth, and an outer portion covering the base or inner portion."

Erwin & Wheeler, Solicitors for Complainant.

Offield, Towle, Graves & Offield, Solicitors for Defendant.

QUARLES, *District Judge.*

I shall not attempt an elaborate opinion in this case, but shall content myself with stating briefly the points upon which in my judgment the case ought to turn.

The Williams patent, No. 347,544, dated August 17th, 1886, leaves no doubt that the same processes and mechanical methods were at an early date practiced and employed with reference to artificial teeth. The careful and intelligent analysis made by the defendant's expert, Pond, satisfactorily shows that complainant has merely adopted and applied to natural teeth the invention of Williams. There seems to be no room for invention. The application of the Williams process and product to natural teeth, involved only mechanical skill. It is a mere carrying forward a new and more extended application of the original thought. A mere adaptation of a new use does not involve invention.

Hurt vs. Evory, 133 U. S., 349,358.

Appleton Mfg. Co. vs. Star Mfg. Co., 60 Fed. 411, C. C. A. 7th Cir.

Baker vs. Duncombe Mfg. Co., 146 Fed. 744,746, C. C. A. 8th Cir.

For obvious reasons the practice of this invention, when applied to natural teeth, will demand greater mechanical skill than is involved in the handling of artificial teeth. It appears to me that Williams had exhausted the inventive thought, and that nothing remained for the complainant except by superior mechanical skill to adapt the same process and attachment to natural teeth. However useful and desirable this extended application of Williams' discovery may prove, it does not involve any original conception which the law recognizes as invention.

SECOND.

The testimony offered by the defendant to show prior public use of the invention appears to me to satisfactorily establish that defense. It is true that the presumption is in favor of the patent, and that the testimony under this defense must be clear and satisfactory. Here we have the testimony of a prominent dentist and professor whose integrity is not questioned, namely, Dr. Allan G. Bennett, with an experience of over thirty-five years, who has practiced his profession in Philadelphia, Flushing, New York, Minneapolis, Minnesota, and has had a very extensive practice. He identifies the article written by him under date of May, 1888, in the *Dental Cosmos*, in which he described a new attachment or anchorage in bridge work. He also identified a model which he exhibited at the time, and which was offered in evidence. He testified that this article and model covered the identical invention claimed by the complainant, and that the description in the printed report, together with the model, were sufficient to enable any person skilled in the art to understand the invention. Dr. Bennett also testified that in the college clinic he publicly explained this process and attachment to the college with which he was connected; also that he himself practiced this invention, and gave the names of sundry patients upon whose natural teeth he had practiced this invention, and testified that there were many more whose names he could not recall.

Similar testimony was given by Dr. William V.-B. Ames, who for twenty-seven years practiced his profession of dentistry in the city of Chicago. He testified that he had practiced this invention upon natural teeth as early as 1890 and 1891, giving the names of sundry patients in whose mouths the supposed invention in suit was practiced for more than two years prior to the filing date of complainant.

The testimony of those witnesses is not disputed except only collaterally by the testimony of complainant, who insists that the grooves in the natural teeth could not have been made as early as the date fixed by Dr. Bennett, with any of the tools or implements then known to the profession. This testimony of the complainant is denied by both of said witnesses. I feel constrained to accept the testimony of these disinterested witnesses who were not contradicted or impeached. It seems to be well settled that the prior knowledge or use in this country by a single person will negative novelty in a patent, no matter how limited such prior use.

Coffin vs. Ogden, 18 Wall. 120.

Brush vs. Condit, 132 U. S. 39.

For these reasons the bill must be dismissed with costs.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 1.)

My Dear Boy: I have just learned that you have decided to take up the study of dentistry, and I cannot refrain from telling you that this fact excites my keenest interest. Not that there is necessarily anything momentous in a boy studying dentistry, or that I imagine you will be so very different from a great many other boys who have studied before you, and yet I cannot escape the conviction that it may be possible for you to be different, and in this lies my interest in you and my chief reason for addressing these letters to you. As I look back over my own career, and the careers of so many others of my friends in the profession, I am impressed with the latent possibilities which we have all neglected, and which, had we not neglected them, would have worked out immeasurably for the benefit of the profession and for our own personal welfare. I am going to try to point out some of the mistakes I have made myself and some I have seen in others, and I shall be very frank with you in the statement of these mistakes. I shall tell you nothing that I have not experienced myself or seen in others, and so you may accept what I tell you as authentic. If I am extremely personal in my remarks both as to you and to myself it is only because I want to impress you with the earnestness of my efforts to the end that I may do you some good, and I am more interested in the good I can do you than I am in any literary excellence or the so-called good taste which these letters might otherwise represent.

To be perfectly fair with you I think I ought to warn you in the beginning that I shall likely say some things to you which may not be very agreeable to your present point of view, and I hereby absolve you from any obligation to read the letters. I am not forcing my convictions on any one, but if you deliberately choose to read, then you must not complain if I say the things to you which I think you most need rather than the things which you would most like to hear.

First, I regret to note that you have been induced to study dentistry by an impulse altogether too purposeless. In other words, you have practically drifted into it without the slightest conception of the moral obligation involved in taking up a professional life. You have apparently gone into it as a business proposition pure and simple, and unless you change your point of view I am going to be blunt enough to tell you that you would better stop where you are and take up some other pursuit. By this I mean that if your chief aim is the making of money then it is a mistake to follow a professional life. This does not imply that you will not be able to make money in dentistry nor that you should be visionary enough to ignore the bread and butter side of any pursuit you elect to follow. It simply means that the single ambition of making money with no other purpose in life does not fit into the highest achievement of a professional pursuit, nor can a man constituted with this as his chief aim secure the greatest amount of happiness in following such a pursuit. There are ideals in professional life which never occur to the man who is solely and simply a business man, and these ideals developed to their ultimate perfection form, as the years go by, the richest reward that any man may hope to acquire. While money is useful and necessary the mere accumulation of money never brings to the individual the elation that does professional achievement which relieves human suffering and adds to the comfort and happiness of the race.

And yet when I come to think of it I do not imagine that you are very different in your attitude to the matter from most other young men who have studied dentistry in the past as well as those who are now studying it. In most instances the high ideals, if they come at all, come as the result of association with professional interests and only after years of contact with professional men. Some few there are who seem to have the professional instinct instilled into them at their very birth, and fortunate are these when they take up a profession, and more fortunate the profession which they select. But most professional men are such only by education and, more's the pity, there are very many men ostensibly practicing a profession who neither by nature nor education have attained to professional status. They are merely representative of the perversion of occupation which we so frequently see exemplified among men—a perversion which is all the more serious when it affects professional life.

It may be well at the beginning for you to be told something of the difference between a profession and a business. There is, of course, or there should be, some business connected with the practice of a profession, and of this I shall write you more in detail later. But the chief mainspring of professional life is the consideration of people, while that of business is the consideration of commodities. It is practically the difference between persons and things. And this involves a greater moral obligation on the professional man than on the business man. If John Jones, merchant, has a piece of calico which some one wants he is not under any obligation to let the calico go without the money, but if an individual comes to John Smith, dentist, suffering with pain it is his duty to relieve that pain absolutely irrespective of whether or not the sufferer has a penny to pay for it. It is the supreme duty, as it also is the supreme satisfaction, of the professional man to relieve suffering under every circumstance, let the sufferer be a princely potentate or a pauper, an archbishop or a drunkard in the gutter. There is at least this much unselfish devotion to humanity which you must learn to assume if you are to be a true professional man, and while such a relation may seem to you now to be one-sided and to work a hardship on the professional man, yet I want you to believe me when I say that there are compensations which more than counterbalance this, and to which I shall refer in some detail in a future letter. Suffice it to say that it is your duty now at the beginning of your student days to study carefully the true relation which a professional man should bear to society, and to absorb into your very being the real essence of what professionalism implies. If you will do this I can promise you a wide and varied field of usefulness, which in the ultimate means for you your full share of happiness.

I cannot close this first letter without bidding you a hearty welcome into a profession which has claimed the best energies and greatest interests of my life, and in which I trust that you may succeed beyond anything of which you may now conceive. Most cordially yours, THE PRECEPTOR.

[EDITORIAL NOTE:—These letters will be continued in future issues covering nearly the entire coming year. They will deal with the young man during the various phases of his college career, and will follow him out into the first few years of his practice. It is hoped that they may prove of some service in guiding the beginner over some of the rougher places in this the most critical period of his professional experience.]

CORRESPONDENCE.

LETTER FROM DR. WEDELSTAEDT.

204 N. Y. Life Bldg., St. Paul, Minn.
September 2, 1910.

To the Editor of the DENTAL REVIEW:

A circular letter has just been received from Dr. J. O. Keller, of Chicago, wherein the following paragraph appears:—

"Accompanying Keller's 1909 paper on Caries and Erosion was a request asking each party to give one or more logical reasons why Keller's Neutral Salt processes of decay and controverting Black and Miller's microörganic theories, are not true. Up to date no replies except from Kirk, the famous *Cosmos* editor, Buckley of Chicago, and Wedelstaedt of St. Paul. All dissented except the latter who seemed to be divided in opinion."

The following is a copy of the only letter which was sent Dr. Keller regarding his essay on Caries.

204 N. Y. Life Bldg., St. Paul, Minn., April 23, 1910.

Dear Doctor Keller:—

Your letters and essay on Caries has been before me for some time. The essay has been read very carefully and it is herewith returned.

In regard to your investigation, permit me to say that where I have been dissatisfied with the results of any investigation, which has been made, my first step has been to make a similar line of work and thus ascertain if the results, as originally obtained, were correct. If it was found that the results were correct, the work ended as there was nothing to be gained by a farther carrying on the work unless something which was new and important was discovered. After years of work Drs. Black and Williams have given to the profession of dentistry, the results of their investigation regarding Caries of the Enamel. Now you come with the results of your investigation, but one thing, which is of utmost importance has been overlooked; you have not made a similar line of experiments to those which were made by Drs. Black and Williams, and thus you do not know of the correctness of their work and results. It is of absolute importance that you do make such a line of experimental work.

You will observe that the name of Miller has been ignored. The work of Miller was a grand one but his work dealt almost wholly with *decay of the dentin.* What we as a profession should be interested in more than all else is, *The Beginning of Decay of the Enamel.* What ever results have been obtained in dealing with enamel, have been due to the work of Dr. G. V. Black. Dr. J. Leon Williams has proved Dr. Black's results. It is with such results that we are to deal. If you are able to disprove the results which have been obtained by the men named, you will have done a great work. But first, I would suggest that you make similar experiments and thus ascertain if you cannot obtain similar results. If you can prove Dr. Black's results, later on, it will be time enough to begin a line of experimental research work which will have for its object the disproving of his results.

I speak intelligently when I say, that every investigator courts criticism of the results which he may obtain, because such a man is only interested in obtaining the truth; he wishes just that and nothing else. Who obtains the truth or how it is obtained, is absolutely of no concern to him, just so it is the Truth. That is about all which any intelligent investigator desires.

Very truly yours,

E. K. Wedelstaedt.

Those who are interested in and who are taking part in this controversy may draw ther own conclusions in reference to my being "divided in opinion."

Yours truly,

E. K. Wedelstaedt.

39 Upper Brook St., Grosvenor Square, W. London.
September 8, 1910.

To the Editor of THE DENTAL REVIEW:

Dear Sir:—In the current number of your journal, the committee on Necrology of Illinois State Dental Society have allowed an error to creep in with regard to the date of graduation of our lamented friend Dr. J. W. Wassall. He graduated with the class of 1881, Dental Department, University of Michigan, not in 1878 as stated in the report. Knowing your desire for accuracy is my only apology for apprising you of the correct date. I remain,

Yours truly,
W. MITCHELL.

PRACTICAL HINTS DEPARTMENT.

EDITED BY J. E. SCHAEFER, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, THE DENTAL REVIEW, 55 State street, Chicago, Ill.]

Wood Polishing Discs:—Go to any dry goods store ask for wooden button molds, these are discs of wood like a knife edged wheel with a hole in the center. They run in sizes from the size of a dime to the size of a dollar and are very useful for polishing deep places in bridge work or plates, as they carry pumice very nicely and hold their edge; they are very nice for burnishing with rouge and cost three or four cents a dozen.—W. F. Reber, Chicago.

Rendering Insertion of Hypo-Needle Less Objectionable to Patient:—Press upon the gum with the tip of the finger of left hand with sufficient force to cause blanching and slight discomfort. The needle can then be inserted in this area without trouble. The blanching partly desensitizes the tissue and while patients tolerate a little discomfort from the pressure of the finger, many would not, if they knew or believed it was being occasioned by a sharp, steel instrument.—H. F. Watts, Melvin, Ill.

Saving Gold Grindings:—Before finishing a gold filling, smear the rubber dam around the tooth with vaseline. The flying particles of gold ground from the filling will alight upon the vaseline smeared dam. Smear vaseline on strips and discs used in polishing gold fillings. If you stand on a rug when operating, have it cleaned by a pneumatic cleaner from time to time and save the dust. The amount of gold the refiner will get out of the rubber dam, strips, discs and dust you have saved in a year will be surprising to you.—Albert E. Converse, Springfield, Ill.

Use a Lens:—Get into the habit of using a lens to examine all cavities after you consider the preparation for filling completed. A 3-inch reading glass does nicely, and will frequently reveal defective margins that had escaped observation by the unaided eye. To one who has not followed this practice it may give an inkling as to why some of our nicest restorations fail in a short time. Cavity margins must be so formed that the filling material may be adapted to them. Prepare each cavity so well that you would be glad to show it to your competitor across the street.—P. G. Puterbaugh, Chicago.

To Prevent Discoloration of Backing:—To prevent the usual discoloration of the tip of a platinum alloy backing, when used with a Steele facing, the following method of obtaining a 24k. tip economically and quickly has proven very valuable. Cut backing flush with tip of facing, bevel slightly on facing side of backing, bend a piece of pure gold 36g. two millimeters wide upon itself, slip on end of backing, pinch with pliers, flux, and draw solder from under side of backing, smooth facing side with file and facing will slip on flush and leave proper length for protection.—M. L. Schmitz, Chicago.

Some Remarks on Prosthesis:—Say, are you making full dentures with which some of your patients masticate beefsteak to beat the band? Have you proof of the fact that would be admitted as evidence in a court at law, that any of them can perform that function well? "They say they can" has no more weight as evidence of fact, than "hearsay" has, in a case at law. Can stronger proof be demanded or shown than to have the patient chew beefsteak—and then look at it? If you compare this with the average appearance of beefsteak masticated by persons having good natural teeth—and should the "parity" of the two be about even—then you do have proof that would have weight in court. It is a demonstration. Beats any gnathodynomometrical calculation all hollow—tells the truth.

Simple, easy.

There now!—T. W. Pritchett, Whitehall, Ill.

Inlay Cases Before Casting:—The inlay invested; the crystallization of the compound having taken place; the crucible-former and the sprue wire having been removed; an aid in knowing just when the investment should be subjected to a higher heat, can be obtained by marking with an indelible pencil on the investment, just before the same is placed over a slow flame. This will prove of invaluable assistance in aiding one in knowing when the steam has ceased.

The philosophy of such procedure is very simple to grasp, i. e. The investment compound being moist, will cause the violet pencil mark to spread upon it, and be absorbed. When this mark assumes the appearance of a very fine line, complete crystallization has taken place; the steam has been exhausted, and an even molecular behavior of the compound has been effected. The same can then be safely subjected to a higher heat. Many failures in casting could be attributed to faulty initial technique in investing. Advantage should therefore be taken of very little contrivance, until some day we may have a standardized rule to guide us. So far, personal equation has played an important part in the successes and failures of casting. —Bernard Bramm, Chicago.

Treatment in a Case of Heart Failure—As the prevailing symptom of both syncope and heart failure is brain anemia, the position and preliminary treatment should be the same. In addition remedies more or less directly affecting the heart are ordinarily used as amyl nitrite, strychnin, nitroglycerin, digitalis, ether and camphor.

Nitrite of amyl is administered by inhalation in 3 to 5 minim doses. It is a forcible, quick heart stimulant, although but transient in its effect, and as soon as the primary effect of the drug has been realized, it should be immediately followed by the use of a general stimulant. I am inclined to the belief that strychnin 1/30 grain or nitroglycerin 1/100 grain, both administered hypodermically, are rather the favorite remedies in America, while where I am practicing the following prescription is more generally employed:

℞

Ether..............1.0
Camphor...........2.0
Ol. Oliv............8.0

in which the olive oil is only to act as a solvent for the camphor. This is administered hypodermically in 10 minim doses. If fairly immediate results are not obtained from this, the dose may be repeated after a few moments.—George O. Webster, Berlin.

MEMORANDA.

LA SALLE COUNTY DENTAL SOCIETY.

The annual meeting of the La Salle County Dental Society will take place at Ottawa the third Tuesday of October. V. P. Perisho, Secretary.

BOOKS RECEIVED.

Bookkeeping for Dentists. By Frank White. Sixty pages. Published by Bailliere Tindall & Cox, London, England, 1910.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Michigan State Board of Dental Examiners will be held at Ann Arbor, November 16 to 19, inclusive.

Negaunee, Mich. A. W. Haidle, Secretary.

NEW INFIRMARY.

Dr. H. G. Langworthy of Dubuque, Iowa, is building a private infirmary for the ear, nose, throat and oral surgery on the southeast corner of Tenth and Bluff streets, Dubuque.

NORTHERN INDIANA DENTAL SOCIETY.

The twenty-second annual meeting of the Northern Indiana Dental Society will be held at South Bend, Monday and Tuesday, October 17 and 18. 1910. Clem Shidler, Secretary.

South Bend, Ind.

NORTHERN ILLINOIS DENTAL SOCIETY.

The twenty-third annual meeting of the N.-I. D. S. will be held the third Wednesday and Thursday (19-20) of October in Aurora. The chairman of the program committee has assured me that he has prepared a "cracking good" program. Come prepared to assimilate it.

Frederic H. Bowers, Secretary.

NEW EDITION OF GRAY'S ANATOMY.

Messrs. Lea and Febiger of Philadelphia announce a new edition of Gray to be ready in time for the opening of the medical and dental schools this autumn. The promise of the publishers is that this edition will be far in advance of any previously published, which means much in the way of excellence.

CHANGING HIS OCCUPATION.

Mr. William Findlay, after about twenty years' service as a traveler for the Chicago house of H. D. Justi & Son, leaves to enter the employ of the Bitter Root Land and Irrigation Company as their agent, with headquarters at Peoria. Mr. Findlay leaves the house he has been connected with all these years with their best wishes as to his future success. He is possessed of those sterling qualities which should ensure his steady advancement in any line of effort, and the land company may be congratulated in securing his services.

"TOOTH TINKERS."

Under the above title Mr. Roy L. McCardell publishes an article in *Hampton's Magazine* for September which vigorously shows up some of the methods in vogue in a certain class of "Dental Parlors," which are to be found in all large cities on the continent. This article is one of the most fearless and telling arraignments of the practices followed in these "parlors" that we have ever seen in print, and it should do a great good in calling the attention of the public to the evil. Coming as it does from a man outside of the profession it has all the greater weight, and Mr. McCardell is entitled to the thanks of all reputable dentists for his painstaking exposure of the methods of these charlatans.

MINNESOTA STATE BOARD.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held at the Dental Department of the State University in Minneapolis on November 15, 16, 17, 1910.

All applications must be in the hands of the secretary ten days before. All applicants must be graduates and present their diploma. Those having practiced in any of the following states for five years or more will be exempt from the theoretical examination: Iowa, Indiana, Michigan, Nebraska, Wisconsin or Montana. Minnesota dentists are admitted to those states on same conditions.

For blanks and further information apply to the secretary, Dr. Geo. S. Todd, Lake City, Minn.

RECENT PATENTS OF INTEREST TO DENTISTS.

956,218. Tooth regulator. Julius Steinbrugge, St. Loius, Mo.
957,032. Dental attachment. Wm. J. Brady, Jackson, Ohio.
956,843. Denture. Edward B. Crane, California, Mo.
957,671. Dental cuspidor. Isaac M. Hair, Union, S. C.
957,563. Impression tray for dentistry. Mathew M. Kerr, Detroit, Mich.
958,335. Toothpick. Joseph G. Strock, Trindle Springs, Pa.
957,913. Denture. Samuel G. Supplee, New York, N. Y.
958,048. Dental chair. Henry E. Weber, Canton, Ohio.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, Solicitor of Patents, Fendall building, Washington, D. C.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the state of Illinois will be held at the University of Illinois (Dental Department), corner Harrison and Honore streets, beginning Monday, Nov. 7th, 1910, at 9 a. m. "The following preliminary qualifications shall be required of candidates to entitle them to examination by this board for a license to practice dentistry in the state of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reputable university, who enter the school or college as freshmen on or after the school year 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school or a certificate from the State Superintendent of Public Instruction, equivalent officer or deputy, acting within his proper or legal jurisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma." Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five (5) days prior to date of examination. The examination fee is twenty dollars ($20), with an additional fee of five dollars ($5) for a license. Address all communications to T. A. Broadbent, secretary, 705 Venetian building, Chicago.

DENTAL COLLEGE COMMENTS.

COLLEGE OF DENTAL AND ORAL SURGERY OF NEW YORK.

Graduates.—L. Abramskaia, B. Brahms, A. Brown, D. R. Christie, A. Gilman, C. M. Cole, D. D. S., W. Goldman, A. T. Goldwater, D. D. S., L. Greenfield, S. Gortz, H. H. Harrison, J. W. Held, F. K. Husfeld, R. Kipp, F. Kleiner, C. Kopelsohn, D. D. S., B. F. Kreis, I. J. Kurz, B. H. Kutyn, T. Kutyn, Z. Lichtenstein, W. H. McDonald, K. Sheinman, J. J. Sloman, N. B. Stang, M. B. Steiner, J. L. Tell, M. Weiss, S. Weissman.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, NOVEMBER, 1910. No. 11

BISMUTH PASTE AS A DENTAL THERAPEUTIC AGENT.*

BY RUDOLPH BECK, D. D. S., CHICAGO.

About three years ago when Dr. Emil G. Beck first presented to the medical profession the bismuth paste treatment for suppurative sinuses, etc., I began to test this new remedy in the various suppurative conditions of the mouth, in order to ascertain whether the splendid results attainable in surgery could also be obtained in dentistry.

On previous occasions I have given preliminary reports of my results in pyorrhea alveolaris[1]; later on the treatment of chronic alveolar abscesses and sinuses of the jaws,[2] and now after a thorough test of nearly two years I desire to report to this body my experience and my conclusions as to the merits of this new therapeutic agent for the above conditions.

The treatment consists in the injection of a liquified paste composed of 33 per cent bismuth subnitrate and 67 per cent vaseline into suppurative sinuses or cavities.

The effect of these injections in most instances is the gradual diminution and final cessation of the discharge. It is essential, however, to inject every recess of the pus pocket or sinus. Another feature necessary for success is the removal of all foreign bodies, such as sequestra, etc., when present, but it is not necessary to curette or wash out a cavity or sinus before treatment. For small cavities in which the paste is to be retained for some time, the following formula is employed:

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*Read before the Illinois State Dental Society, May, 1910.

[1] Read before the Los Angeles County Dental Association, April 1909, and Alumni Association of University of Iowa, Feb., 1909.

[2] Read before the Northern Illinois Dental Society at Elgin, Oct., 1909.

No. 2 Bismuth subnitrate	30 parts.
Yellow vaseline	60 parts.
White wax	5 parts.
Paraffin	5 parts.

I shall give a resume of a series of cases treated by me in 1908 and 1909, and describe a typical case of each variety in order to illustrate the technic.

PYORRHEA ALVEOLARIS.

Forty-four severe cases, of which 27 were men and 17 women, ages ranging from 25 to 68 years, were selected for trial and in all of them the bismuth treatment was carried out in the same manner with following results:

Twelve were entirely cured after 1-20 injections; fifteen were only temporarily benefited; seventeen were refractory, no improvement having been attained after sufficient trial.

An analytical study of these forty-four cases helped in determining the cause of failure. Every case in which a complete cure was effected was free from any constitutional disorder, the affection being of only local origin, while in the cases in which the treatment failed there existed in nearly every instance some general constitutional disorder responsible for the pyorrhea. This fact corroborates our former assertion that whenever a constitutional disease, such as diabetes, nephritis or faulty elimination is associated with pyorrhea, the treatment of these constitutional diseases must either precede or accompany the local treatment if any results are to be expected. This fact also explains why only temporary benefit was obtained in the fifteen cases which responded so slowly to treatment.

Case 1. Victor B., age 45, clerk, applied for treatment February, 1909. First molar and one bicuspid was lost, presence of salivary deposits and profuse suppuration from the sockets of the incisors and molars were present.

The first treatment was as follows: Without any special preparation of the teeth, the blunt pointed, flexible silver needle of a metal syringe, filled with bismuth paste, No. 2, was inserted into the deepest part of the pus pockets, and then by gentle and steady pressure the paste was forced into all recesses. The same procedure was followed in all sockets affected. The second treatment, two days later, consisted in removing the deposits around the necks and roots of the teeth, and again the paste was injected in the same manner. The discharge changed from a purulent to a muco-serous character. After each subsequent injection at intervals of two to three days the condition of the gingiva gradually improved and after three weeks treatment the case was entirely cured, there being no recurrence up to this date, one year.

The deposits were intentionally left undisturbed before the first injection, because the scaling is apt to produce some laceration and thus produce new channels for infection in the already infected area. By injecting the paste previous to the scaling of deposits, this danger is obviated, because the paste is known to possesse a bactericidal action and by its contact with diseased tissues for a time, it places them in a condition favorable for the removal of the deposits.

FREQUENCY OF INJECTIONS.

The number and frequency of the injections are determined by the response to treatment in each individual case. If, after the first injection, the character of the discharge changes to a serous or a seropurulent consistency, it is best to wait from three to four days before repeating the injections. In exceptional cases, the pus discharge will entirely cease after the second injection and the case remain cured, but, as a rule, it requires from five to fifteen injections to produce good results. If the discharge persists, the injections may be repeated daily for a period of thirty days, and if after that time no improvement has followed, it may be assumed that the case is refractory, and the pyorrhea due to constitutional disease. The treatment is then discontinued. Before attempting to treat a case it is well to inquire whether a constitutional disease, such as diabetes, rheumatism or gout exists, since in these cases the results of the bismuth paste treatment will not be satisfactory.

The combination of bismuth subnitrate and vaselin forms an excellent means of treating pyorrhea alveolaris. As the bismuth is insoluble it is not dissolved by the saliva, and the vaselin, being a semi-solid vehicle, it keeps the bismuth in contact with the diseased tissues long enough to produce a curative effect. The curative property of this paste in all chronic suppurations has by this time been fully tested in thousands of surgical cases, and it has been proven by laboratory investigations that the contact of the infected tissues with the paste causes a gradual diminution and final disappearance of microorganisms in the discharge, and in most instances its complete cessation and obliteration of the suppurative cavities and sinuses.

Several theories as to the mode of action of the paste and its therapeutic effect have been advanced.

Dr. Emil G. Beck in his work[3] states that the bismuth paste when introduced into infected channels produces chemotaxis, thus the leucocytes invade the suppurative field and destroy all microorganisms present. Furthermore, he asserts that the mechanical distention of the infected cavity, separating the diseased walls bringing them in contact with a sterile and smooth paste, is in itself a condition favorable to healing.

A plausible cause for the therapeutic action has been advanced by Dr. Baer of the Johns Hopkins University[4], who concluded after experiments that the free nitric acid liberated from the subnitrate of bismuth by hydrolisis from the heat of the body is the factor responsible for the effective healing. This question is still open. The clinical fact, however, remains certain, that the introduction of the paste in chronic suppurative cavities checks the growth of microorganisms and produces rapid healing.

It is, therefore, not surprising that we should obtain gratifying results in pyorrhea alveolaris, when the disease is of local origin, and I am convinced, that if the cases are properly selected and those of systemic origin excluded our results will be uniformly good.

CHRONIC ALVEOLAR ABSCESS AND FISTULA.

A series of fifty-eight cases of sinuses were treated with bismuth paste by me; the period of the existence varied from six months to fifteen years. Some of the cases were previously treated by other known methods, but their persistence speaks for the inefficiency of the former methods employed.

The treatment with bismuth paste produced the following results:

Six cases closed after the first injection without operative interference; three cases closed after two injections without operative interference; two cases closed after three injections without operative interference; four cases closed after five injections without operative interference; six cases closed after from five to ten injections without operative interference; nine cases closed after more than ten injections without operative interference.

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[3] Emil G. Beck. Monograph, 1910, Bismuth Paste in Chronic Suppurations.

[4] Johns Hopkins Bulletin, October, 1909, p. 318.

This is a total of thirty out of fifty-eight cases, in which the injection of paste produced a closure of the existing sinuses, without surgical aid, after other methods had failed in the majority of them.

The remaining twenty-eight cases required surgical interference, as follows: Eight cases curettage of the sinuses or excision of the apex of the roots was necessary during the treatment. All cases thereafter closed.

In sixteen cases even curettage failed to produce a cessation of the discharge and thus the removal of the tooth involved was necessary for cure. While in the sixteen cases the paste was used, it is fair to say that the sinus in them might have also closed without the use of the paste.

The remaining three cases had fistulous tracts not communicating with any tooth, and their origin was unknown. One case, of which a detailed report follows, required operative interference, while the other two cases healed by means of the injection alone. The results obtained in this series speaks for the efficacy of this method, and I shall give the history of some of the typical cases to serve as an illustration of the technic employed. It is obvious that the percentage of cure by this simple and painless method is much larger than by any means previously employed. Many of these cases have been treated for years by very competent and painstaking dental practitioners without any results, and were cured by means of the injection of the paste within a short time.

The results will largely depend upon the care with which the proper technic is carried out, and the perfect understanding of the causes of failure.

It is most essential that the paste when injected should reach all the remotest parts of the fistulous tract. If any portion of the infected tract is missed, it will result in failure, because the focus of the disease will soon reinfect the entire tract by the secreting pus.

Another point to be remembered is the fact that whenever there is a sequestrum or a foreign substanec at the bottom of the sinus, a cure cannot be expected until the foreign body is removed.

A suitable syringe is also of vital importance. The best is a metal syringe, with a flexible, blunt pointed silver nozzle, so the conical tip may be adjusted against the opening of the sinus and the exertion of enough pressure to allow the paste to reach all the crevices before the overflow would return around the sides of the nozzle.

For the injection of sinuses formula No. 1 is generally used, but, at times, where it is desirable to retain the paste for a longer period it may be of advantage to use formula No. 2, which on account of the addition of wax and paraffin becomes a little stiffer on cooling. It is not advisable, however, to allow large quantities of the paste which contains paraffin to remain permanently within a closed cavity, on account of the irritating quality of the paraffin, when retained for absorption.

The following case of chronic alveolar abscess, with a fistulous tract serves as an illustration of this method of treatment.

Case 2. Mrs. E. R., age 61. Gives a history of developing about ten years ago an abscess above the second upper molar, which after rupture terminated in a chronic discharging sinus. The tooth was treated, the sinus closed, and the tooth then filled. Several months later the patient noticed a swelling on the buccal alveolar process. This proved to be a recurrence, and after the abscess ruptured pus kept on discharging for the past year, with only occasional temporary closure. With this history, she presented herself to me for treatment. Believing that this sinus originated in an imperfect root filling, I first removed the gutta percha root filling, but found the canals dry and odorless. Thereupon I injected bismuth paste through the sinus opening to see if it would pass through the apical opening into the tooth, but it did not. The pulp chamber was then packed with cotton and the tooth sealed with gutta percha. Two days later the packing was removed, but no pus was found, nor could any paste be forced into the tooth. I then enlarged the sinus opening by means of a sharp round bur (No. 8 S. S. W.) and reinjected the sinus. Three days later another injection was made, after which the sinus closed, and has remained so up to date, one year. Permanent filling was then inserted.

At the present time I do not remove the fillings before injection, unless I am certain that an infected root is the cause of the sinus. The injection is made first and if, after a reasonable length of time.

the sinus shows no tendency to close, I seek for the cause in the root canal.

EMPYEMA OF THE ANTRUM OF HIGHMORE.

Nine cases were treated. All were of dental origin, with the following results: Six of these were cured by injection without any surgical interference; one case failed on account of a polyp within the antrum and was referred back to the rhinologist who removed the growth, and the case recovered; two cases are still under treatment and improving.

The following case illustrates the treatment:

Mr. L., aged 32, developed an acute empyema of the antrum about two years ago. A rhinologist was consulted, who removed the upper first molar roots, which he suspected to be the cause of the infection. He made a good sized opening through the alveolar socket, irrigated daily with salt solution, and packed it with borated gauze. The acute symptoms subsided, but a profuse malodorous discharge persisted for nearly seven months, when the patient presented himself to me. The treatment was as follows: A long strip of foul smelling gauze was withdrawn, and without irrigation or curettage, an injection of bismuth paste was made, No. 1, by placing the blunt tip of a glass syringe against the opening in the alveolar process, and filling the entire antrum until the excess escaped through the natural opening in the nasal cavity beneath the middle turbinate, displacing the pus contents first. The patient got instant relief. The injections were repeated at intervals of three or four days, and the gradual diminution of the discharge and the change to an odorless seropurulent fluid indicated rapid improvement. The systemic microscopic examination of the secretions revealed the general diminution and final disappearance of the microorganisms which, at first, were quite abundant. Within two months the external opening closed, and the patient after sixteen months observation has had no recurrence.

This case illustrates the technic and results which may be obtained in suppuration of the antrum. When the extraction of the tooth is not permissible or advisable, then an opening through the canine fossa is made into the antrum and the injections carried out in the same manner as those through the alveolar process. In operative cases, where fresh bleeding surfaces are present, it is best to pack the bleeding cavity with gauze strips, remove them after twenty-four hours, and then inject the cavity with bismuth paste. It must, however, be borne in mind that suppuration of the antrum of Highmore very often originates from an infection of the ethmoid cells, and then, of course, it will not yield to this or any other treatment until the ethmoid cells are exenterated. We must, therefore, confine ourselves only to those antrum cases, which are of dental origin. Those of ethmoid origin must be treated by the rhinologist. Other diseased conditions, such as necrosis due to phosphorous or syphilis, dermoid cysts, and infected cavities, due to traumatism, etc., have been treated with the paste with very satisfactory results.

For diagnostic purposes of sinuses, the bismuth paste is of great value. Radiographs taken of the injected parts will show with clearness all ramifications of the fistulous tract and often lead to the focus of the disease. Many times the most unexpected conditions are thus revealed and will aid us greatly in our decision in operative treatment.

In order to ascertain the average results otbained by dental practitioners, I have prepared a tabulated record of cases treated by dentists in various states of the Union who have kindly co-operated with me and sent their records, for which I am greatly indebted to them, and desire here to express my thanks for their prompt response to my request.

HISTORIES OF CASES FROM DR. R. BECK'S SERIES.

Case 4. Pyorrhea Alveolaris. (Mild case, local cause.) Mr. J. V., aged 52, merchant. Was treated by me for several years for pyorrhea alveolaris, with only temporary relief. In September, 1908, when I first began to experiment with the bismuth paste, I decided to try it on this case, which had resisted my previous method of treatment. It only required five injections at intervals of four days to produce cessation of the discharge, and now after two years no recurrence has taken place. Result, cure.

Case 5. Pyorrhea Alveolaris. (Severe case, local cause.) Mr. J. R. B., aged 41, salesman, has for more than a year had a profuse pus discharge from the deep pockets of nearly all his badly neglected and many decayed teeth. Abundance of salivary and serumal deposits were present. No treatment had been applied up to December, 1908, when I made the first injection of bismuth paste. A few days after this injection, the deposits were removed and injections repeated at three to four-day intervals for a period of six weeks. Improvement followed, but patient had to leave the city for two months. Upon his return the treatment was resumed, and after four months' treatment the discharge ceased. Decayed teeth were then filled, and up to this date not the slightest sign of recurrence has manifested itself. Result, cure.

Case 6. Pyorrhea Alveolaris. (Systemic cause.) Sister R., aged about 50. Gives a history of chronic rheumatism and of suffering from a protracted case of pyorrhea alveolaris. I examined the mouth in November, 1908, and found ten teeth in her upper jaw, including a four-tooth bridge from cuspid to molar and one central incisor, was missing. None of the teeth left were carious. Pus discharge from all the sockets of the lower teeth and also from the roots of her two teeth serving as abutments in the upper jaw. The remaining upper teeth were free from discharge. All suppurating pockets were injected with bismuth paste twice a week for several months. In spite of this persistent and thoroughly applied treatment for over one year, there was no marked improvement. Finally the lower bicuspids became loose, and their removal was necessary, and the treatment was discontinued. The result was negative.

Case 7. Pyorrhea Alveolaris. (Severe case, local origin.) Mr. J. A. F., aged 37, railroad man. Gives a history of profuse chronic suppuration of the 28 teeth still retained in his mouth. I examined him in February, 1909; he was then under treatment of a specialist for chronic middle ear disease. The discharge from around his teeth was profuse and of a very offensive odor. Bismuth paste treatment into all the sockets was carried out daily for two weeks. The bad odor slightly subsided; the pus changed its character from a thick yellow to a thin grayish liquid. A number of ill-fitting crowns were corrected and injections continued two times a week for three weeks. The odor then disappeared, and the discharge changed to a seropurulent consistency.

Patient left the city, and upon his return, some weeks later, his teeth were firmer in their sockets, and gums assumed a healthier appearance, and the discharge became very much diminished. Result, marked improvement.

Case 8. Pyorrhea Alveolaris. (Tuberculous subject.) Mr. D. M., aged 24. Afflicted with pulmonary tuberculosis; gave a history of recently acquired pyorrhea alveolaris. In July, 1909, he applied to me for bismuth treatment. Many of his teeth were badly decayed and broken down to the roots, with profuse, malodorous pus discharge from the sockets. Some of the hopeless roots were extracted, and then the suppurating pockets of the remaining teeth were injected with bismuth paste every second or third day, but only slight improvement was noticed. The patient was ordered to go West, and returned some months later in better health, and with improved conditions of the mouth. The paste injections were resumed and the improvement thereafter was quite marked, and the patient is still under treatment. Result, improvement.

Case 9. Alveolar Fistula. (Simple.) Mr. John F., aged 40, tailor. In November, 1908, gave a history of continuous discharge of pus for six years from a fistulous opening on the alveolar process opposite the roots of the second upper molar. The tooth was slightly loose. The roots were filled. A fungous granulation over the external opening of the sinus was excised and the bismuth paste forced into the entire fistulous tract. Only two injections were necessary to close this sinus. Result, cure, sixteen months.

Case 10. Alveolar Fistula, Injected for Diagnosis. Miss J. H., aged 22. Developed at the age of nineteen an alveolar abscess from the left first bicuspid. I opened into the pulp chamber and evacuated the pus. A pulp exposure in the left second bicuspid necessitated the devitalization of the pulp. Both teeth were filled; recovery, and no trouble until two years later, when a sinus formed between the first and second bicuspids, which continued to discharge for one year, when she returned for treatment. Not knowing which of the two teeth was the source of the sinus, I injected the paste and after a second injection the sinus closed, and no recurrence has taken place after one year. Result, cure.

Comment: In former times I would have been compelled to open into both teeth in searching for the cause.

Case 11. Double Alveolar Fistula. Mr. Ed. M., aged 34, merchant, presented himself in November, 1908, with two fistulous openings opposite the roots of the second-upper molar. One opening was on the lingual and the other on the buccal surface. All the teeth on that side were sound and vital. An injection of the bismuth paste was made and the patient returned next day with severe pain in the right first upper molar. I exposed the pulp in this tooth, but no pus escaped. This indicated to me that the sinus did not originate in the first molar. A radiograph was taken, which clearly showed the tract of the sinus leading into the region of the root of this tooth, but not communicating with it. The tooth was filled and injections continued. After four injections the buccal fistula closed, and two more injections sufficed to close the lingual. Six months later the lingual fistula reopened, but after two injections of paste, closed again, and no recurrence has taken place since. Result, cure.

Case 12. Sinus from Necrosed Hard Palate. Mr. F. H., aged 30, merchant, about ten years ago the upper central incisor was extracted, but a part of the root remained in the jaw. An artificial tooth was placed in the open space. A few weeks later an abscess developed right above the crown and ruptured. The root worked its way down and was finally removed, but in spite of this the discharge did not cease. On the contrary, another sinus opened far back in the hard palate, near the margin of the soft palate. Treatment of competent dentists and physicians was ineffective. In this condition he came to me for treatment. A radiograph was taken, but no foreign substance or sequestrum could be detected. An injection of bismuth paste was made for diagnostic purposes and revealed a network of sinuses undermining the hard palate. The injection also produced a large alveolar abscess, with severe pain and swelling of the face. An incision gave immediate relief, with gradual reduction of swelling. Three days later the injection was repeated, and with two subsequent injections the discharge ceased for two months. The foul discharge returned, and I concluded that a necrotic bone must be at the bottom of this suppuration. Under local anesthesia an effective curettage was made, which resulted in the removal of a sequestrum, with three subsequent injections the sinus closed and has remained so up to date. Result, cure.

Case 13. Sinus of Jaw, Following Injury. Mr. L. M., 45 years of age, salesman, was attacked on the public highway and struck with some blunt instrument. An upper bridge, which extended from the second molar to the first molar on the opposite side, with seven abutments, became loose. The roots being loosened, due to neglect and extensive infection around all the roots of the upper jaw, caused a profuse flow of pus. The root sockets were injected with bismuth paste, every day for two weeks, and at the expiration of that time no more injections were necessary. The flow of pus ceased and the roots retaining the bridge became much firmer. At the end of three weeks the patient was again able to eat solid food. The case was kept under observation for several weeks after, but no recurrence took place—two years since. Result, cure.

Case 14. Suppuration of Antrum. Mrs. T. R. G., aged 22, gave the following history: About a year ago a badly decayed upper second bicuspid root was broken into several pieces while being extracted. Many attempts were made to remove the apical portion of the root. Either through the force of forceps or an existing necrosis at the apex, the root found its way into the antrum and remained there. Some time after the patient developed an empyrema of the maxillary sinus. X-ray revealed the presence of the root which was removed, and the cavity filled with bismuth paste, No. 1. Injections were repeated at intervals of three to four days for three weeks. Pus ceased. Patient was discharged. After a period of eight months there was no recurrence. Result, cure.

REPORT OF CASES FROM MEMBERS OF THE PROFESSION IN DIFFERENT SECTIONS OF THE COUNTRY.

Dr. T. T. Moore, Jr., Columbia, S. C.

History. Diagnosis of case.	Previous treatment; bismuth paste treatment; number of injections.	Results up to date and remarks.
Case 1. Chronic alv. abscess. Six years' standing.	Used former known methods without results. Six bismuth injections.	Apparent cure.
Case 2. Chronic alv. abscess. Three years' standing.	Other methods without avail; three injections.	Cure.
Case 3. Chronic alv. abscess. Six months' standing.	No former treatment; six injections.	Very good.
Case 4. Chronic alv. abscess. One years' standing.	No previous treatment; three external injections of paste.	Cure.
Case 5. Pyorrhea alveolaris.	Some thirty or more cases treated twice a week with bismuth paste.	Fair; uses modified formula. Bis. Sub. 35 per cent; vaseline 40 per cent; paraffin 25 per cent; states he obtains better results with thick paste.

Dr. J. W. Beach, Buffalo, N. Y.

Case 1.

Purulent chronic alv. abscess.	Previous treatment 20 per cent silver nitrate of no avail; three injections of bismuth paste.	Absolute cure. Has used the bismuth paste treatment in numerous cases with gratifying results.

Dr. Davis A. Hare, Chicago, Ill.

Case 1.

Chronic alv. sinus extending from right upper first molar, running obliquely backwards and upwards to floor of the orbit; thick; greenish pus discharge.	Bismuth paste treatment for six weeks.	Complete closure.

Dr. John D. Patterson, Kansas City, Mo.

Chronic empyema of the antrum; presence of polyp in same.	Previously treated; operated on three times; removed polypoid growth, curetted antrum, cauterized with pure carbolic acid, packed cavity with iodoform gauze for 24 hours then filled cavity with bismuth paste.	5 days after all signs of discharge disappeared; case cured.

Dr. F. K. Ream, Chicago, Ill.

Chronic alv. abscess sinus leading into floor of nose.	Cavity injected with bismuth paste skiagraphed for diagnostic purposes; curetted and then injected with bismuth paste twice weekly for three weeks.	Case cleared up. All suppurations ceased. Skiagraph accompanies report, showing distribution of necrotic area where diagnosed.

Dr. Chas. N. Johnson, Chicago, Ill.

Case 1.

Chronic alv. abscess; in upper central incisor apparently caries of process and tooth extremely loose. Seemed hopeless.	Root filled in usual way. Injected paste in labial sinus until it came out between the gum and tooth at lingual; after six bismuth paste injections, showed some improvement, but pus continued, then injected 25 per cent sulphuric acid 5 or 6 times.	Case cleared up, sinus closed and tooth firm. Bismuth paste treatment unsatisfactory.

Case 2.

Chronic abscess left lower molar. Root had been filled.	Three bismuth paste injections.	Case healed up and condition of tissues greatly improved. Sinus has opened once since treatment.

Case 3.		
Chronic abscess right lower molar.	Injected paste 10 times.	Condition greatly improved. Still some serous discharge.
Case 4.		
Empyema of the antrum (chronic).	Curetted antrum and filled with paste, caused so much discomfort and case seemed so foul in odor that the paste was removed and solution of argyrol used.	Case cured. Bismuth paste treatment unsatisfactory.

Dr. W. L. Colyer, Minneapolis, Minn.

Case 1.		
Necrosis of upper maxillary extending from first upper molar to cuspid with considerable swelling on buccal and palatal walls. No suppuration at any time.	Opening made in buccal and palatal region and curetted; kept packed with iodoform gauze for four weeks; changed to bismuth paste a month ago.	Case coming along in good shape, although somewhat slowly, on account of anemia of patient.
Case 2.		
Considerable pyorrhea pocket, lower first molar.	Two injections of bismuth paste.	Cure.

Dr. F. L. Hunt, Asheville, N. C.

Case 1.		
Chronic alv. abscess.	Treated by former methods, but of no avail, root amputated and parts injected.	Case apparently cured.
Case 2.		
Cervical alv. suppurative inflammation due to hereditary syphilis and a faulty developed tooth.	Bismuth paste injected frequently, inflammation and suppuration subsided.	Cure.

Dr. J. J. Sarrasin, New Orleans, La:

Pyorrhea alveolaris; nine cases were of local origin. Thirteen cases were associated with or the result of some constitutional disorder.	Besides bismuth paste injections and instrumentation; systemic treatment was administered where needed. Has substituted subcarbonate for subnitrate of bismuth and found that it produced equally satisfactory results.	His conclusions that bismuth paste unquestionably helped to control suppuration and promoted granulations.

Dr. Harold S. Vaughn, New York, N. Y.

Case 1.		
Purative cystic cavity in the max. sinus, leading from right central inc. to left second bicuspid.	Previously treated by other men until 6 weeks ago. Curetted and injected bismuth paste once a week for six weeks.	Satisfactory. Gradually closing.
Case 2.		
Chronic alv. abscess. Two years' standing.	Persisted to previous treatment. Apical root amputated, three bismuth paste injections in three weeks.	Sinus entirely closed.
Case 3.		
Chronic max. sinus. Infection from right upper second molar.	Removed tooth, irrigated antrum with saline solution, injected and filled antrum with bismuth paste.	Produced discomfort, purulent discharge greatly increased, also more odor from nose; after 4 days the paste was removed and resorted to daily irrigation for eight days when odor and discharge ceased entirely. Bismuth paste treatment unfavorable. Also used bismuth paste for post-operative packing in impacted molars, preventing secondary infection, and lodgment of food debris, during healing process.

Dr. E. S. Loeffler, Ann Arbor, Mich.

Case 1.		
Chronic alv. abscess with sinus. 15 years' standing.	Four injections of bismuth paste.	Practically cured.
Case 2.		
Chronic alv. abscess with sinus.	Previously treated for two years with no effect. Two bismuth paste injections.	Greatly improved.
Case 3.		
Chronic alv. abscess with sinus. Two years' standing.	Former treatment, no result; 5 bismuth paste injections.	Much improved.
Case 4.		
Chronic alv. abscess with sinus. Ten years' standing.	Three bismuth paste injections.	Practically cured.
Case 5.		
Chronic alv. abscess with sinus. One year's standing.	Four bismuth paste injections.	Nearly well, also states that 6 or 7 similar cases were treated by means of the bismuth paste and are doing well.

Dr. Virgil Loeb, St. Louis, Mo.

Case 1. Chronic alv. abscess.	Previously treated by other methods for some time, no result. 5 injections of bismuth paste.	Cured.
Case 2. Chronic alv. abscess.	Previously treated by other methods, several more bismuth paste injections than Case 1.	Slight improvement.
Case 3. Submaxillary sinus from retained root.	5 injections of paste.	Cured.
Case 4. Chronic empyema of antrum.	3 injections of paste.	Cured.
Case 5. Chronic empyema of antrum.	Several injections.	Result slight improvement. Has not had very good results with bismuth paste in pyorrhea alveolaris.
Attributes his failure to	faulty technic.	

Dr. Chas. Kaufman, Chicago, Ill.

Case 1. Chronic max. sinus of the lower jaw, from remaining portions first molar root; two years' standing.	Root removed but pus continued to discharge for 30 years. Twenty injections of bismuth paste.	Case healed perfectly. Gnawing sensation which persisted, disappeared after first injection.
Case 2. Alv. abscess over cent. incisor.	Lanced abscess, cleaned with H_2O_2; packed with 5 per cent iodoform gauze, for draining, four bismuth paste injections, in nine days.	Dismissed patient for 1 week; upon his return found case entirely healed.

Dr. G. W. Dittmar, Chicago, Ill.

Three cases of chronic alv. pyorrhea.	Talbott's formula, after scaling and polishing changed to bismuth paste.	Very good though compelled to see the cases occasionally for reinjection and polishing roots. He states of all things he has used, bismuth paste seems to be the most satisfactory to date.

Dr. B. F. Luckey, Patterson, N. J.

Chronic fistula above a suppurating central inc. of two years' standing.	Apical end of root amputated and made 1 injection. Absorption.	Pus discharge and pain ceased. Radiographs show condition first before treatment; second injection of paste and extent of; third, paste absorption, cavity filled with healthy granulations.

Dr. H. M. Semans, Columbus, Ohio.

Case 1. Sup. sinus left up. cuspid.	Apical third of root removed; 4 treatments of bismuth paste.	Cured.
Case 2. Sup. sinus left up. bicuspid.	Apical root excised, 8 or 10 paste injections.	No result. Too much necrosis, tooth removed.
Case 3. Sup. sinus left up. lateral.	Apex of root excised; curetted and one bismuth paste injection.	Cured.
Case 4. Pyorrhea alveolaris. 7 teeth involved.	Injected bismuth paste from 2 to 7 times.	In 5 teeth the gum tissues assumed a healthy appearance. The other two teeth had to be extracted.
Case 5. Empyema of the antrum.	Previously treated without success. One injection of bismuth paste.	Cured. Reports that he used bismuth paste in 49 cases, including those reported, and his results were as follows: 12 cured; 33 failures; due to extensive necrosis, remaining 4 still under treatment.

Dr. W. F. Whalen, Peoria, Ill.

Case 1. Pyorrhea alv. Several years' standing.	Previous treatment indifferent; three bismuth paste injections.	Absence of pus.
Case 2. Chronic pyorrhea alv.	One bismuth paste injection.	Pus discharge ceased.
Case 3. Alv. fistula. One year's standing.	Eight injections in 2 months.	No recurrence.
Case 4. Alv. fistula. Three years' standing.	4 injections.	Case not closed, but no discharge.
Case 5. Chronic alv. abscess.	9 injections of bismuth paste. Has used bismuth paste in sockets after removal of impacted third molars as a dressing with good results.	Continued to discharge seropurulent mass. Bismuth unsatisfactory.

Dr. M. R. Harned, Rockford, Ill.

Case 1. Chronic alv. abscess. Three years' standing.	Refilled tooth and apex amputated. Phenol through channel. 3 bismuth paste injections.	Healed.
Case 2. Chronic alv. abscess involvement of process.	6 bismuth paste injections.	Healed.
Case 3. Chronic alv. abscess opening on labial and palatal walls.	3 bismuth paste injections.	Cured.
Case 4. Pyorrhea alv. Many cases.	Mechanical.	Inflammation reduced, flow of pus stopped.
Case 5. Retarded dentition.	Used paste as a packing to keep opening clear.	Good results. States further that he has used bismuth paste in hundreds of cases and with beneficial results, principally in pyorrhea alveolaris and dental abscess; that in 50 per cent of all cases the injection of the paste is all that is required to produce a cure.

Dr. H. R. Risinger, Chicago, Ill.

Anterior sup. max. badly necrosed with sinuses from five anterior teeth. Skiagraph No. 1 showing case before bismuth paste treatment was started; No. 2, after three weeks treatment.	No previous treatment, canals in the affected teeth were not filled, but putrescent. 9 bismuth paste injections in three weeks.	Entirely healed, and bone filled in except over right central incisor, a slight serous discharge continues. A curettage will be necessary.

Dr. Malvern D. Hoff, Atlanta, Ga., reports to have used bismuth paste in skiagraphic work, for diagnosis. Has seen some beautiful results from its use, producing healthy granulations, in necrotic sinuses following curettage.

Dr. G. H. Oakman, Detroit, Mich., has used bismuth paste during the past four or five weeks, but yet unable to judge of its full worth. Though in the few cases he has used it he is satisfied of its therapeutic value.

Dr. J. P. Buckley, Chicago, Ill., has used bismuth paste in abscess cases, only as a subsequent packing for wounds after the surgical treatment, and the results have been uniformly good, applied in at least 30 cases, and in only one had to remove the paste.

Dr. J. W. Marsh, Keokuk, Iowa, has not used bismuth paste on account of supposed presence of arsenic, in the bismuth subnitrate. Furthermore, is not satisfied with the explanation of what becomes of the insoluble substance after injection. Zinc sulpho-carbolate, with vaseline is substituted in pyorrhea pockets with excellent results.

Dr. Sidney M. Callen, Chicago, Ill., used bismuth paste in many cases, after amputation of the roots of teeth, where the abscess produced a fistula, and found it of great service.

Dr. W. H. McMillan, Roseville, Ill., used bismuth paste in pyorrhea alveolaris, with good results. The objection he found was that the paste was too thin and had some difficulty in getting the paste to flow from the syringe tip to be retained in the pus sockets.

Dr. A. Brom Allen, Chicago, Ill., reports that he injects bismuth paste into abscessed alveolar sockets, after the extraction of teeth. Also injects the paste into sockets of impacted third molars, after surgical procedure with good results.

Dr. C. F. Dahlin, Elgin, Ill., states that he has had success in a number of cases by using bismuth paste.

Dr. Enrique Garrison, Jalisco, Mexico, writes that he has used everything known for the treatment of Pyorrhea Alveolaris, and has had fair results from Dr. Head's tartar solvent. Since last September he has used bismuth paste exclusively, and he has had some remarkable results. He states further that more than 85 per cent of the people of Jalisco are afflicted with pyorrhea alveolaris. Reports that more than 25 cases were treated with bismuth paste and entirely cured.

Dr. G. H. Hurlbut, Evanston, Ill., found bismuth paste useful, in large pyorrhea pockets and chronic abscesses with sinuses.

Dr. J. V. Conzett, Dubuque, Iowa, has very successfully used bismuth paste in a great many cases.

Dr. William Mullin, Chicago, Ill., states that he has used bismuth paste in chronic alveolar abscesses, and obtained the desired results from one to three injections, providing no foreign body or sequestrum is present.

Dr. Wm. M. Murray, Minneapolis, Minn., reports a severe case of pyorrhea alveolaris involving the lower incisors and second bicuspid. Instrumentation and one injection of bismuth paste sufficed to produce a cure. Examined April 30, nine months after and found the tissues in perfect condition. Has treated many cases of suppurative sinuses, with bismuth paste with marked success, but thinks that in many cases surgical interferences in connection with the paste is necessary to obtain the best results.

Dr. V. W. Low, Buffalo, N. Y., reports a case of alveolar fistula over the root of an upper lateral incisor crowned about 11 years ago, but gave no trouble until a short time ago. The crown and root filling was removed, various drugs injected through the tooth and sinus, but no results. Three or four bismuth paste injections showed great improvement.

Dr. Thos. L. Gilmer, Chicago, Ill., states that he has not sufficient data as yet, to make any statement other than in the few cases in which he has used the bismuth paste the results have been favorable in some, while in others less so. Further states that at his clinic he has seen a case of very bad bismuth poisoning, due to bismuth treatment in empyema.

Dr. W. C. Deane, New York, N. Y., reports that he has had favorable results from the use of bismuth paste, in the treatment of pyorrhea alveolaris, also as a dressing in sockets of impacted third molars after their extraction.

Dr. Walter F. Lewis, Portland, Ore., reports that in the limited number of cases where he employed bismuth paste, the results have been most gratifying, especially in persistent chronic alveolar abscess, and says that to establish its therapeutic value, no argument is necessary.

Dr. J. H. Wooley, Chicago, Ill., reports that he has used bismuth paste with success.

Dr. Henry G. Ferris, Brooklyn, N. Y., reports that he has used bismuth paste in pyorrhea cases and the results have been very satisfactory. For necrosis of the mandible, he has increased the stiffness with paraffin, and has had favorable results, as far as the arrest of pus formation was concerned, but new granulations did not seem to be stimulated by it. In hospital practice, he has used it in one case of Noma acute, following diphtheria, but did not arrest the progress of this disease. The case resulted fatally. In a large number of children's cases under four years of age he has combined bismuth subnitrate with white vaseline and honey, in cases of gingivitis and ulceration of the mucosa and lips with immediate relief.

THE PRESS AS AN AID IN EXTENDING THE DENTAL FIELD.*

BY C. B. WARNER, A. M., D. D. S., URBANA, ILL.

Last month a leading dental supply house issued a trade circular which began as follows: "Dear Doctor: The business side of dentistry is the livest question before the dental profession today, inasmuch as the dentist must sell his services, the same as the merchant or salesman must sell his merchandise, and in order to sell his services for the largest fee he must make the proposition as attractive as possible.

The sentiment expressed by this circular is the sentiment which is gradually sweeping over the dental profession, and belongs, in part, to the wave of commercialism which is passing over the country in general, due to our changing, complex, industrial situation. Within the past two years our dental magazines have given increasing attention to topics relating to business building, sometimes at the expense of the scientific and technical contributions.

Two leading magazines have doubled their subscription list, in the past year, in propaganda of this nature. The movement appears to be increasing and refuses to be ignored.

Already, there is a divided opinion among the profession. Some view certain tendencies in this movement with alarm, and prophesy that in the end it will discredit the profession.

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*Read before the Illinois State Dental Society, May, 1910.

Dr. E. C. Kirk, in an editorial, in the February *Cosmos,* gives this warning, "What is needed is an orientation of the money getting idea, so that the mind of the student can comprehend it in its correct relationship to the other interests and activities of life." "Dental journals are catering to this commercializing tendency, holding out to weaklings, the bait of larger professional returns by the adoption of so-called business methods in practice."

Dr. Kirk is especially opposed to the educational and philanthropic campaign, in which the dental dealer is involved. In this connection he says, "Dealers in dental goods and the manufacturer of nostrums are promoting so-called campaigns of education for the openly avowed purpose of increasing their volume of sales and the attempt is made by seductive offers of financial and other forms of help to aid in the propagation of the legitimate movement, now active, for widening the spheres of public dental service. Let us stop and realize the situation. We are confronted with a condition of affairs, upon the correct solution of which the very existence of ethical professional dentistry depends." "Let no dental organization part with its ethical birthright for the mess of commercial pottage and above all let every man interested in securing for his profession the status to which it is inherently entitled, use his best efforts to neutralize every attempt of a sordid commercialism to annex itself, directly or indirectly, to this distinctly professional prerogative."

To this statement we have a reply by Dr. George Wood Clapp, in an editorial, in the March *Digest,* in which he says, "Our first duty as dentists is to serve our patients to the best of our ability and no effort is too great by which we render such service. But when the service has been rendered on this plane it is equally legitimate to see to it that the patient remunerates such service in proper degree."

Dr. Wm. H. Trueman in the Dental *Register,* for January, clearly states the problem. "Business building is in the air. Not only in dentistry, but in all lines of work by which an honest living may be made. The commercialism involved is rather rasping to ethical ears, nevertheless, the prosy fact of food wanted, the need of lodging, clothing and provision against the time when advancing years makes a grasshopper seem a burden, will intrude to break rhyme of charming poetry, and mar by discordant notes the enrapturing melody of how we would like things to be. How to get more business and how to make business return a larger profit is today the vexed question over which many minds are pondering."

It appears that this conflict of opinion is more apparent than real. What we need is to keep up the high standard in our scientific and technical work, that we refuse outside commercial interests the right to invade our profession, and that we use such business helps as may prove useful. I believe all will agree to this.

One thing also is necessary, that the dental societies take up these questions and direct the movement intelligently, rather than leave the matter in the hands of individual dentists, who might deal with it in a haphazard manner, much to the detriment of the profession.

At present there are four methods advocated of extending the dental field:

1st. By such individual instruction as the dentist can give the patient while in the office.

2d. By the distribution of booklets giving popular instruction.

3d. Thorough work in public institutions, such as infirmaries, and in the schools; and,

4th. By the aid of the public press.

It is to the use of the latter that I wish to call your attention. The problem as it presents itself is this: Is there any necessity that we use the public press? If so, how best to do it? To this end a series of questions were sent to fifty dentists, selected at random throughout the state, to ascertain if the sentiment for business building along this line was general. The replies indicate that the sentiment was nearly universal in favor.

It may assist us to examine these replies in detail. To the first question, "It has been said that not one person in ten have their teeth attended to properly. What is your belief? Forty-eight expressed their opinion that the statement is not overdrawn, two admit that it is.

To the second question, "What per cent of the lack of care is due to ignorance?" forty-seven place their belief that fifty per cent, or over, of those who do not care for the teeth neglect them through ignorance. There are three who place the percentage lower than fifty. To the third question, "Do you believe publicity would prove of assistance?" all but one answers yes. To the fourth question, "If so, in developing the dental field should we depend on individual effort, society effort, or both?" forty-nine answer both, one favors society effort exclusively. To the fifth question, "Do you approve of the State Society engaging in this work, provided it can be done without special privilege to any one?" all but one answer yes.

It has been said that you can prove anything by statistics and in a measure that is so, yet the remarkable thing is that these different dentists agree so closely and the demand for action is so unanimous.

In answer to the question how best to adapt the public press to our needs, I found a wealth of valuable information in magazines, in consulting both ethical and advertising dentists, physicians, and newspaper men. To relate in a few words, I found it to be their opinion that only a small per cent have their teeth attended to properly, largely due to ignorance, and that publicity, rightly promoted, would prove of very great value. Of methods of promoting I will speak later.

When we come to question the matter it is really astonishing how it is possible for the quack dentist to have any practice whatever, when we consider his methods and the operations he performs. The answer is publicity. He could not last for a week if it were not for the press. He has preempted a field, out of which he should have been driven long ago, and that field should be occupied by the legiti-

How many patients there are who will drift into your office and ask you to make a set of teeth that are pushed in the gums, and held there, such as they read about in the Chicago papers. If these patients have no better instruction concerning the teeth, whose fault is it?

A physician remarked to me, a short time ago, "You dentists are as well educated as we, you work harder and get less fees, you, yourselves, are to blame. The public sets the same value on your service as you yourselves value it, no more, no less. If you convince the public that you are worth more you will get more. We physicians know the value of a clean mouth and good mastication, but we cannot spend our time doing work that you ought to do, for we have our own field to look after."

After examining into the features of various plans for promoting publicity, I have come to conclusion that the simplest and most beneficial method will be along these lines. Let a committee of the State Society select about fifty popular articles, on different phases of dental education, that will be readable, instructive, and not too long. These we may rest assured—with the organization that we have in this state articles should be given to a press association, who make it a business to put this matter in plate form, using such illustrations as may be necessary. They will send the articles to the publisher and attend to all detail work. By experience it has been found that ninety-five per cent of the publishers will print matter free, furnished this way. As an illustration we will consider a town of 2,000 population, having a weekly newspaper, and two dentists. If these two dentists should apply to the committee for such service there would be sent that newspaper, express prepaid, twenty-six different articles, or enough for a year's supply, if used every other week. The annual cost to those two dentists would be $1.50 a piece. This cost is based on articles averaging one-half column long. If a full column is desired the cost will be double. From the nature of these articles the reader forms the opinion that it is news gathered by the paper, as they are unsigned, and anything tending to advertise a person, method or article to anyone's advantage is strictly eliminated. At the price mentioned these two dentists would find this cost much cheaper than the professional card often inserted in the local paper, and with this added value, that this money is spent not so much to get the other fellow's practice, as to enlarge the field, so that both will have plenty. The committee should be in close touch with the local dentists and, as far as possible, give them the exact service they ask for at the proportionate rate.

The success of this movement lies entirely with the committee in charge. It can advance the plan or kill it at pleasure. At the rate mentioned there will be ample funds for this work, without any extra appropriation from the society, and there can be no excuse on this ground for work not being accomplished.

In closing I wish to thank those who have assisted in this investigation. This plan is not put forth as a pet scheme, but as a result of inquiry, and a correlation of the facts obtained. To many who have an extensive practise this subject will not appeal, only as it has a beneficial effect upon the community. To others, who have fears that old age may reach them unprepared financially, this line of action will bring added interest. There are many details which time does not permit me to add at this time, but doubtless many good points will be brought out in the discussion.

Other plans also may possibly be found much better than the one outlined. If our society should ever undertake this work of one thing the work will be well done.

MANDIBULAR MOVEMENTS AND THE ARTICULATOR QUESTION.*

BY CHARLES E. LUCE, D. M. D., STUTTGART, GERMANY.

It may seem presumptuous on my part to deal with a subject which has received so much studied attention, for scientific research pertaining to the mandibular movements and their adaptation to the correct articulation of artificial teeth has occupied years of the most painstaking work of many scholarly minds, notably, Bonwill, Spee, Walker, Schwarze, Christensen and latterly, the exhaustive work of Professor Gysi on this subject would seem to admit of no further arguments, and yet I feel that there is still something to be said.

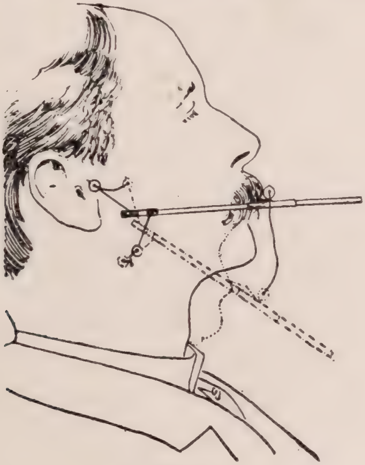

Fig. 1.

HISTORY.

Before the year 1890 there was very little literature to be found bearing upon the subject of mandibular movement. In the year 1889 it fell to my lot to read a paper on "Mastication" before the freshman class at the Harvard Medical School, in which I maintained that there was no fixed axis of movement in the mandible, but rather, being hung in its capsular or lateral ligaments, the movements were subject to the actions of the various muscles cooperating with, and antagonizing each other. This was a bold statement to make, inasmuch as it did not coincide with the text books then in use, therefore it was incumbent upon me to prove my assertions by personal investigations and with the perfect equipment of the Harvard Medical School laboratories at command and under the experienced advice of Professor H. P. Bowditch, I was able to arrive at certain definite conclusions.

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*Read before the American Dental Society of Europe.

DETERMINING THE MANDIBLE MOVEMENTS.

To obtain an accurate record of the mandible movements, I employed the photographic method, such as used by Marey and others, and may be described as follows: A bright silver bead was fastened to a wooden pin, or dowel, which was firmly clamped between the lower central incisors and with the subject in a strong sunlight, that a bright spot should be reflected from the bead, a pure profile, or side view was photographed and the sensitive plate was exposed during the opening of the mouth, and the bright spot reflected from the bead during the motion was continuously photographed and its excursion recorded on the negative as a line, thus giving the actual movement of the place upon the jaw to which the bead was opposed. To obtain tracings at the condyle and the angle a light framework was constructed which carried adjustable beads which could be opposed to the points at which tracings were desired.

Figure 1 shows the device in position; the pin inserted between the inferior incisors, two of the bright beads being opposite the condyle and angle, the other in front of the symphysis. It is apparent that the mandible and device will move in concert, and that the movement of the beads is, in fact, the same as that of the points opposite to which they are placed. Figure 1 also shows the tracings taken at the three points mentioned. It now becomes necessary to indicate the methods by which the several tracings were subsequently studied; the picture was enlarged in outline by optical projection and the tracing of the opening at symphysis was subdivided into convenient, equal spaces, then, by means of dividers, corresponding points in the tracing at condyle and angle were determined as follows. Referring to Figure II, it is evident that the distance between the points marked O in the tracing at symphysis, and the point marked O at condyle does not change, as both points are attached to a device which does not change its length, and, though these points may seek different positions when the mouth is opened, the distance between them remains the same, and we find the ends of the tracings at 8 to be the same as at O, the beginning.

If the dividers are set at the proper distance, we can find, by simple measurement, how far the condyle moves in a given movement at the symphysis, and the motion of the angle is worked out in the same manner. The numbers on the tracing in Figure II indicate the position occupied simultaneously at various points of the jaw, the movements of which were studied. The tracings at all points in the jaw are readily understood, if we regard their motion as the result of a combination of a uniform downward and backward rotation round the condyle, with a forward motion of the condyle itself in a curved line, with the concavity upwards, always bearing in mind that this movement of the condyle is at first slow, then more rapid, and subsequently slow again. It is evident that points in the immediate neighborhood of the condyle will have a movement differing but little from the condyle itself, while at more distant points the backward rotation around the condyle will be relatively more prominent, because the motion is on the circumference of a larger circle. The tracings in Figure II illustrate this point and it will be noticed that the tracing nearest the condyle is, like the latter, a curve with its concavity upward, but, at the beginning and end of the motion, where the movement of the condyle is relatively slow, the rotation round the condyle is able to impress its backward motion upon the tracing. In studying the motion of points in the ramus successively more and more distant from the condyle, we observe that the backward rotation

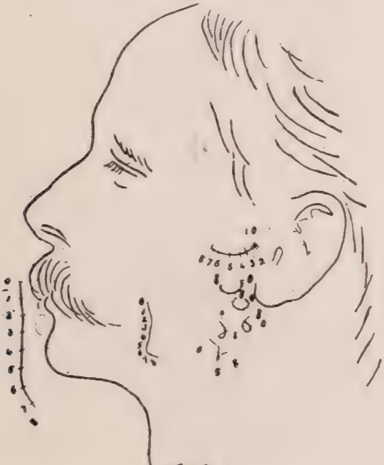


Fig. 2.

becomes more and more prominent, as a factor, and the forward movement, due to the gliding of the condyle round the articular eminence, less and less marked. The fact that this forward movement is most rapid in the middle of its course, explains the looplike character of the tracings, which is retained even as far down as the angle of the jaw.

By referring again to Figure II it will be noticed that the condyle begins to move forward immediately, and even in small openings it performs quite a considerable excursion, contrary to the formerly accepted theory that in small openings the condyles simply rotate on a traverse axis against the fibro-cartilages; it is necessary here to state that any assertion as to the action of this articulation should be qualified by the statement that there is considerable individual variation in the relative movements of condyle, angle and symphysis.

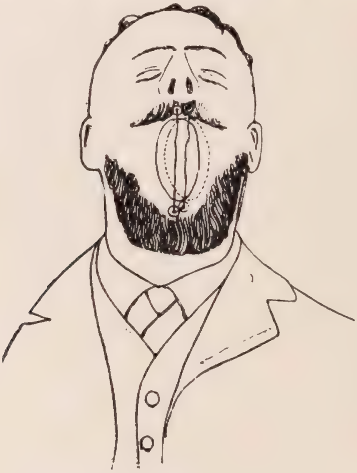


Fig. 3.

Meyer, in his book on "Die Statik und Mechanik des Menschlichen Knochengerüstes," was substantially correct when he stated that the jaw is hung or suspended in its lateral ligaments, and we can readily see that in moderate opening, when the condyle advances, the movement of the angle is comparatively slight, but when the capsular ligament becomes tense, the condyle is kept from farther anterior movement and the angle goes back, as may be seen in Figure II, the jaw swinging from the attachment on the temporal bone.

Other tracings were taken of the down and up motion of the mandible with the subject facing the camera. While the sensitive plate was being exposed, the mouth was opened, the bead making its tracing, and when the mouth was opened widest, the head was turned slightly that the tracing of the bead in closing should not be in contact with the opening tracing. The lines drawn show that the jaw is not depressed or closed in a straight line; the tracings taken contained several curves, which may vary with the same person at different times, on account of the extreme mobility of this articulation and the fact that the condyles do not advance synchronously.

THE ARTICULATION QUESTION.

The records of mandibular movements are interesting as a physiological proposition, and to a certain extent indispensable for an accurate articulator which can be made to reproduce them, but I maintain that we actually need to record but a very small part of this movement, only enough to allow the cusps of the teeth to clear themselves, and in support of this I quote Gysi in the *Cosmos* for February, 1910, page 155, "not until both dentures have been set up to approximate correctness with the help of the hinge joint, may we proceed to arrange the teeth so that they occlude properly in lateral movements. The teeth on one side of the denture are slightly warmed and a lateral movement is made, when the teeth are closed in that position. In this way they will be pressed into their proper positions." From this it is evident that we have no use for further maudibular movement than that which occurs between the closed bite and the articulation which takes place between the cusps of the molars and bicuspids in the lateral movements of mastication and an articulator which would reproduce these conditions, and the correct curve of motion between the two, would seem to be ideal.

I will not undertake to go into detail regarding the numerous improved articulators which have been produced from time to time, I am not familiar with many of them, but from the very excellent work of Professor Gysi I gather that there is none that is perfect; one can not but admire the great work he has accomplished, as well as his wonderful articulator, which is a marvel of ingenious mechanism. I will venture to express two doubts as to its perfection and practical applicability. I fear that it does not admit of actual reproduction of mandibular movements, I mean the actual masticating relations existing in a given case cannot be exactly reproduced. The condyloid records, as taken by his method, are undoubtedly correct, but to substitute a ready-made slotted condyloid record plate of the same "class," I am led to think is not conducive to accuracy. It may be maintained that it is accurate enough for practical use, which it possibly may be, but we must not forget, that at least in some cases, there is more or less condyloid movement, even with slight openings. The Gysi articulator is undoubtedly able to reproduce approximately correct lateral movements, but I question the accuracy of them in combination with a "ready-made" condyloid movement. The principle involved has been beautifully worked out, but the element of possible error must be considerable. One other point seems to me to count against the practical adaptability of this articulator: I fear it is too scientific and complicated in its adjustments, to put into the hands of the average technical man. A simple device which accomplishes a given end with the least effort, is always preferable, for complication of mechanism increases the element of uncertainty in result.

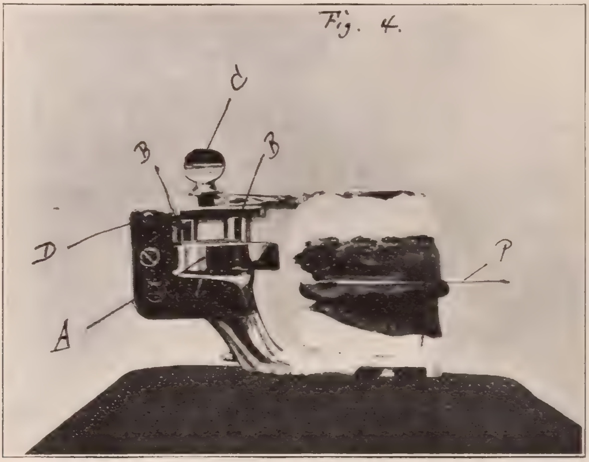
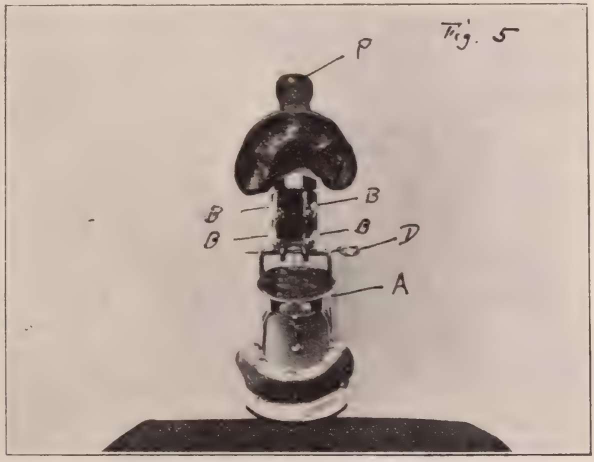


Fig. 4.

THE SIMPLEX ARTICULATOR.

He is a poor doctor who pronounces a disease but offers no remedy. I venture to lay before you the results of my efforts to produce an articulator which can reproduce the mandibular relations existing in mastication, absolutely accurate to each individual case, and above all things, thoroughly practical and easily understood by anyone conversant with the setting up of artificial teeth in the usual way.

Figure 4 shows the Simplex Articulator, which is, as you will see, a pattern not unlike those in general use today, with certain additions, the ability of this articulator to reproduce the masticating movements of the mandible, rests entirely in the record tray A, which contains a record in fusible metal, or impression compound, of these motions, which has been transferred directly from the bite taken in the mouth; the round tracing points B, which have traced the record, are kept in contact by pressure applied with the hand at C; to reproduce these movements, the hinge joint, which is otherwise used during the approximate articulation of the teeth, is disconnected by drawing out the pin D; pressure applied at C maintains accurate contact of the four tracing-points B in their tracings, and the movements of the mandible may be reproduced with absolute fidelity. I will now indicate the proper procedure with the articulator in a practical case: let us imagine a full superior and inferior denture for an edentulous patient; it is decidedly better to complete the lower set in advance, due care being taken that the morsal curve is correct and the cusps of the posterior molars sufficiently inclined lingually, as found in a normal, natural articulation; if it be impracticable to complete the lower set first, we proceed as follows:



Upon the inferior model a stable base plate (preferably the shellac plates in general use), is prepared and the wax is built up and contoured as is usual in taking the bite; the morsal plane must be contoured on the same lines as the finished plate and this plane of articulation must never be changed. Half round brass head nails are now imbedded in the morsal surface of the wax, taking the places of the grinding surfaces of the teeth which will later replace them; these round head nails are used simply to obtain a clear-cut record of the masticating movements on the morsal surface of the upper plate, as will be described. The lower plate is now ready to take the bite, but it must first be thoroughly chilled in cold water to prevent any change in shape during the operation, neither may it be left in the mouth unduly long that it may become softened.

The inferior trial plate finished, we turn our attention to the superior plate: a stable base-plate is prepared and the wax bite is built up as usual, proper care being taken of all contours; both base-plates are now tried in the mouth and the wax is trimmed to approximate the bite; after removing from the mouth, the morsal surface of the wax of the superior plate is softened and the "bite-plate" P is pressed on to the surface and adapted to it; when removed from the wax, the three guide-points will have left their impression, which will insure the same position when again put in place; the bite-plate is now covered on the smooth side with a thin layer of impression compound, a half centimeter is sufficient. After the wax has been well chilled in cold water, the bite-plate with the layer of well softened impression material is put in place and both base-plates are inserted into the mouth of the patient, who is instructed to close in the usual way for taking the bite, which I do not need to describe further here; the lower teeth, or the round headed nails, if used, must bite through the impression material striking the bite plate; the patient is now directed to make the normal lateral masticating movements, from either side into the middle, or closed bite, which are repeated several times, the patient soon has the sensation that the teeth are gliding along a given channel, which is, in fact, the mandibular movement which is now recorded upon the modeling compound. When removed from the mouth, if too much material has not been used, the record will be clear and distinct and both models may now be set into the articulator in the usual way, care being taken that the lower teeth rest normally in the impression of the closed bite.

The register tray A is now filled with softened impression material, the surface is dusted with powdered talc and the four registering points are brought into contact with the surface. The upper part of the articulator, being freed of its hinge-joint, has now free motion in all directions, and being held in contact with the lower part by pressure applied only over the bite, it is apparent that the lower teeth, resting in the imprints on the bite-plate, will control its movements and that these will be traced on the surface of the impression material in the tray. The upper part of the articulator is therefore moved about, following the movements of mastication and we shall find a perfect record of these motions has been traced on the surface of the impression material in the tray, which is now removed and chilled in cold water; in most cases the impression material will serve as a durable record enough, but it can be replaced with fusible metal; a plaster impression of the tracings is taken, the edge of the tray being free, the impression material is then removed and the metal is poured into the tray through one of the holes in the back.

The tray being replaced in the articulator, with the burden of pressure resting in the record in the tray, we shall now be able to reproduce all the movements of mastication.

The teeth are now set up in the usual way, using the pin and hinge joint, and with the teeth set up to the closed normal bite, the hinge-joint is disconnected, and by warming the teeth, they may be pressed into such positions as will accommodate them to all the movements of mastication.

It is not easy in a description such as this to cover all the details, but I trust that the simplicity of this articulator will aid in making it readily understood.

In concluson, this device, like any other, will require practice and a nicety of touch to insure good results, it is undoubtedly far from perfect, but as far as I know it is the only articulator thus far produced which is capable of recording and reproducing actual, individual masticating relations.

STANDARDIZATION IN DENTAL TEACHING AND PRACTICE.*

BY EDWARD C. KIRK, D. D. S., SC. D., PHILADELPHIA, PA.

It seems to be characteristic of the process of development of human thought in any direction that its evolution takes place by impulses or stages.

In our gropings after the truth amidst the darkness of ignorance we stumble across a fact or principle and for the time being the unaccustomed radiance of the discovery is so magnified to our consciousness that we often rest contented in the delusion that we have solved the whole problem, that our single ray of light is the complete and full orbed truth.

Principles so discovered become the springs of action and until we learn by experience that our largest generalizations are but partial and that all truth is relative, we are led into error by the tendency to base our practice upon incomplete foundations.

The history of our efforts to combat the destructive processes which affect the dental organs furnishes numerous examples of this tendency to establish systems of practice upon partial truths, and the same may be said of our educational methods in the preparation of students for dental practice.

Beside the mental habit or trend of thought which leads us to generalize upon insufficient data, there is another and related tendency, an outgrowth of the first, which manifests itself in both our teaching and practice, viz., that which leads us to unify and standardize our systems of education as well as our modes of practice. Taken together these two tendencies or habits of mind are productive of results which in certain respects are open to criticism, for which reason, and because they involve questions which are at the foundation of our professional activities, I take the liberty of presenting them for your consideration and discussion.

It will probably not be questioned that the disease which we call dental caries is the disorder which above and beyond any other has caused the loss of the largest proportion of human teeth and further that the efforts to combat its ravages have compelled the largest share of attention upon the part of those who are concerned with the treatment of defects of the masticating mechanism.

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*Read before the American Dental Society of Europe, Paris, March 25, 1909.

Similarly it is the extent and character of instruction necessary to properly equip the prospective practitioner of dentistry in order that he shall be qualified to intelligently and skillfully combat the ravages of dental caries that constitutes the major element in the modern dental curriculum. It is essentially the study of the etiology of dental caries that constitutes the main feature of dental science and it is the therapeutics of dental caries and its sequelae that constitutes the main features of dental art.

It is to be borne in mind that in all times the treatment of dental caries has been more or less based upon preconceived ideas as to its causation and while in its earlier stages of development the modes of practice in vogue for the treatment of caries of the teeth were almost wholly empirical in character, yet even under such conditions certain notions, though they could scarcely be dignified by the name of theories, were held and advocated as to the causes of tooth decay and even these crude ideas as to the etiology of caries exerted some degree of reflex influence in shaping the technique of treatment of the disease. For example the belief that tooth decay was due to the ravages of worms, a belief so ancient that its origins are lost in the mists of antiquity and which in some localities still survives, produced many devices ranging from incantations and exorcisms down through a long list of therapeutic and surgical means all having the objective purpose of eradicating from the defective tooth the worm which was thought to be its destructive agency. This relationship between the theoretical and the practical has become increasingly prominent as the crude observations of our predecessors have been replaced by the results of exact scientific investigation, and the relationship has become more direct and intimate as the results of scientific study have shown more clearly, as each advance was made, the true nature of the conditions which the art of dentistry is called upon to meet and to fulfill.

Apart from the so-called "worm theory" of dental decay and the various allied notions as to the cause of the disorder which characterized primitive thought on this subject, two other theories in comparatively recent periods have exerted a definite and profound effect upon our therapeutic technique as it is concerned with the treatment of dental caries.

The first of these is the fermentative or acid theory and the second is the inflammatory or gangrenous theory of tooth decay. The earliest definite record of the acid fermentative theory of dental caries of which we have any knowledge occurs in the "Arzeney Buchlein," an anonymous work by a German writer dated 1530, the original of which is in my own collection. This author says of tooth decay "it is a disease and evil of the teeth in which they become full of holes and hollow, which most often affects the molars when they are not cleaned of adhering particles of food, which decomposes producing a bad acid moisture which eats them and destroys them so that they fall away little by little not without much pain."

John Hunter, Fox, Bell and others at the close of the eighteenth and beginning of the nineteenth centuries were exponents of the inflammatory theory of decay, believing that the disorder was similar in its pathogenesis to caries or necrosis of bone. John Bell in support of this view proposed the term "gangrene" to describe dental caries, believing with many of his colleagues that the disorder arose from within the substance of the tooth and proceeded outwardly to the surface and that it was inflammatory in character.

The observation that the proximal surfaces were points of selection for the beginnings of decay was made by the adherents of both theories; so also it had been observed where teeth stood alone, as in cases where a tooth had been lost, that the surfaces of teeth adjacent to the edentulous space were unattacked by caries. These observed facts were, however, differently interpreted to harmonize in each case with the differently conceived theories as to the etiology of dental caries. Those holding to the fermentative or acid theory contended that the space caused by the loss of a tooth ceased to retain food particles, and decay was prevented by the cleansing action of the tongue and friction of food upon the exposed proximal surfaces of the teeth adjacent to the space. Those holding to the inflammatory theory jumped to the conclusion that proximal decay was due to traumatism caused by "lateral pressure" of the teeth and that the extraction or loss of a tooth relieved the lateral pressure upon the adjacent teeth, hence the subsequent immunity of their proximal surfaces which faced the edentulous space. In the light of both of these theories the desirability of the space as a means of protection against proximal decay became an easy deduction, with the result that the separating file took high rank in the dental armamentarium and separation, not only as a method of removing incipient proximal decay, but as a prophylactic against it, became a generally accepted operative procedure. For upwards of a century filing the teeth was universally practiced and reached its culmination in the teachings and example of Prof. Robert Arthur of Baltimore.

The destructive effects of this wholesale mutilation of teeth under the domination of the separation theory became so manifest that its therapeutic, as well as its prophylactic value was seriously called in question. It became evident from the observation of numberless cases by many careful students of the problem that the damage wrought to the septal tissues more than offset any advantages which had been claimed by the advocates of the separation procedure and moreover that separation by the file did not prevent proximal decay but merely tended to shift the location of the vulnerable point to a more inaccessible area of the proximal surface at or near the gingival margin above the new point of proximal contact created by the filing operation. The necessity for obviating the disastrous consequences to the structures of the interdental septum brought about by the separating procedure, together with the possibilities inherent in cohesive gold gave an impetus to contour work so that restoration of tooth forms upon anatomical lines became the ideal of dental art which in practice more nearly satisfied both therapeutic and artistic demands than any preceding method of restorative technique.

Apart from certain of its shortcomings on the artistic and esthetic side it gradually became evident from accumulated observation and experience that from the therapeutic standpoint, contour work was not beyond criticism, that is to say, restoration of contour did not *per se* prevent recurrence of decay even though the adaptation of the filling material to cavity walls was as near physical perfection as it was possible to make it. Recurrence of carious action was found to persist under certain conditions and in certain locations no matter with what degree of skill and general excellence the teeth had been filled. Study of this aspect of the matter led to the conclusion that unless cavity margins were so located as to be upon those portions of the tooth that were kept relatively clean by the friction of food and of the tongue and cheeks, as well as by the usual operations embraced in the dental toilet, decay was likely to recur about the protected margins of fillings and eventually undermine them. Hence the teachings of Royal W. Varney and Marshall H. Webb that the margins of fillings must be so placed as to be "self cleansing" and hence also their successful technique in making saving restorations in gold contour work.

With the advent of W. D. Miller into the field of dental scientific research and his final solution of the intimate nature of the process of dental caries, the first step toward a further elucidation of the circumstances surrounding recurrence of decay around the margins of fillings was taken. Armed with the key to the problem furnished by the researches of Miller, Dr. G. V. Black began a series of studies of the carious process in its relation to operative technique in the course of which he called attention to the bacterial or microbic plaque as a probable factor in the localization of the carious process, a factor which enabled him to at least tentatively explain the existence of what we now speak of as areas of immunity and of susceptibility upon the surfaces of teeth. The conclusions of Black were amply confirmed by the brilliant researches of J. Leon Williams exhibited before the Odontological Society of New York in March, 1897, and I feel that I am speaking well within the limits of accuracy when I state as my opinion that the work of these three men, Miller, Black, and Williams, has collectively exerted an influence in determining the technique of our restorative dental operations more radical and far reaching than have the combined efforts of all of their predecessors. It was because of the work done by Miller and by Williams upon the etiology of caries taken in connection with his own researches as to the causes of recurrent decay that enabled Black to enunciate his now well known and widely adopted axiom that "the margins of a cavity must be placed upon areas of tooth structure that are relatively immune to the attack of caries producing organisms in order to prevent a recurrence of decay." All of which with the characteristic American tendency to take the short cut along the line of resistance has been epitomized by someone in the catchy phrase "extension for prevention."

It will be seen from this cursory historical review of the subject that with the earlier crude ideas as to the causes of caries their reflex influence upon dental practice was to create the operation of separation by the file as a prophylactic measure against recurrence of decay—and the practice of that period by analogy might well have been epitomized in the phrase "separation for prevention." The practice failed because it was found to be based upon an imperfect generalization due to insufficient data as to the exact nature of the carious process. Wholesale mutilation of human teeth was the result and the ultimate loss of a large proportion of those so mutilated. Our experience in this case is such as to demonstrate not only the direct dependence of our practical technique upon our theories as to etiology, but what is of equal if not greater importance, the necessity of scientific accuracy in our theoretical conceptions as to etiology before modifying our technical procedures in conformity therewith.

The scientific axiom of Black which I have already quoted in full and its epitomized form of "extension for prevention" has exerted and is still exerting a constantly growing influence upon the technique of cavity preparation. Like all other expressions of the truth, its applications to practice have been modified in degree by the temperamental and other characteristics of the operator so that we find a range of cavity preparation technique from ultra conservatism on the one hand to extreme radicalism upon the other, the variation depending upon each man's conception of the meaning of Black's axiom and his individual judgment with respect to what are and what are not "relatively immune areas of tooth structure." That the cutting of all cavities to such dimensions as that their margins shall be placed upon relatively immune areas is involving a tremendous sacrifice of tooth structure and its replacement by filling material is a generally conceded fact. This sacrifice, however, the advocates of the method justify on the ground that it is done to prevent recurrence of decay which would otherwise in due course of time bring about the same loss in a more dangerous way. The basis of this form of justification is insecure in the light of what we even now know about the causes of susceptibility and immunity to tooth decay. To Black's axiom has been given the implication that immunity and susceptibility to decay are functions of certain areas of the teeth and the further implication that extension of the filling to certain tooth areas will prevent recurrence of decay. While it is quite certain that the author of the axiom quoted did not intend to imply either of these deductions from his statement, it is certainly true that both of these errors have become fixed in the minds of a large number of men who have made "extension for prevention" the basal principle of their operative technique.

Immunity and susceptibility to dental caries are functions of the environment of the teeth and consequently of nutrition. Areas of tooth structure as such have nothing whatever to do with determining either immunity or susceptibility, for areas *per se* are concerned only with localization of the decay process. Extension for prevention applies only in cases where the carious process is at present active. It is not justified in cases where caries has been active and is not at present active, nor is it justified as an operative principle on the assumption that decay may be active at some future time. It is failure to recognize these limitations of the principle involved in the extension for prevention axiom that in the judgment of conservative men is resulting in a wholesale mutilation of tooth structure that is scarcely less in magnitude and importance than that wrought in the extension-for-prevention axiom that in the judgment of condue to the universal application of broad generalizations in each instance based upon insufficient data.

The question of susceptibility and of immunity to dental caries is still an open one, indeed it is a very widely open one, and in order to intelligently determine the character of our operative technique with reference to the prevention of future recurrence of decay we must first know in a more exact way the conditions which determine susceptibility to tooth caries. This much at least is known concerning the matter, namely, that the causes of tooth decay are to be sought for in the environing conditions of the teeth and not in the teeth themselves, and therefore necessarily not in connection with any particular areas of tooth structure.

With this fundamental principle clearly in mind we must recognize that areas of so-called susceptibility and immunity upon tooth surfaces are vulnerable or invulnerable respectively not because of any inherent difference in the character of the areas involved, but simply because of their forms and relationships which determine the question of localization of decay. Susceptibility and immunity to dental caries are factors which are determined by the nutritional conditions or state of the individual, and as nutrition is constantly undergoing changes; as biochemical activities which are factors of tooth environment are frequently changing; as we all know from clinical experience that susceptibility to caries manifests itself in varying degrees at different periods of life; that it is a condition which comes and goes, we may well question the rationalism of a system of operative technique which involves in many instances such an extensive mutilation of tooth structure when it is based upon what we must regard for the present as a pure assumption that susceptibility will continue and that caries will therefore recur.

The effect of this point of view upon teaching methods in operative dentistry has been profound. It has led to the classification of carious cavities upon so-called typical lines and to modes of cavity preparation standardized with reference to the filling of these classical or typical cavities. So far has this tendency to standardization been carried that enthusiastic advocates of the standardization ideal have attempted to lay down rules for the preparation of carious cavities based upon a formula demanding that cavities having an ascertained depth of a given number of millimeters or fractions of millimeters should have a lateral extension bearing a definite numerical ratio in width to the cavity depth.

Within certain reasonable limits we may admit the desirability of the principle of standardization both in science and in art; indeed in dealing with the data of physical science absolutism and precision are essential elements, but in all problems of biology, wherever the vital factor is involved, it is the departure from absolutism, the tendency to variation which is the characteristic and dominant factor, and it is just this factor of vitality involved directly or indirectly in all of our therapeutic procedures in operative dentistry that stands as an eternal protest against any system or method which would confine or limit our operations within the absolute lines which in all cases, where we are dealing only with physical science or applied mechanics, are essential.

In operative dentistry the thing which concerns us most is not absolutism of standards, but rather the variance from such ideal standards constantly imposed upon our consideration by the dominance of the vital factor.

I fully recognize the importance of basing our educational work in operative dentistry upon classifications of cavities and cavity preparation involving typical elementary standards, but such standards should always be regarded as merely a basis from which the more advanced instruction with respect to the complicated variations from these elementary standards is to be developed. So-called typical standards of cavity preparation are necessarily always ideal in character. Our practical operations for the restoration of teeth are, however, mainly performed upon dentures and under conditions which are not ideal. Slight variations in form or in position of the teeth profoundly modify the conditions, so that our modes of cavity preparation must be modified accordingly. Hence it comes about that the majority of operations are neither typical nor ideal, that is to say they are variants from standard forms. My experience therefore leads me to the conclusion that in operative dentistry it is unsafe to be bound down by precise rules of procedure; that the best results are obtained where the ripened judgment and experience of the operator leads him to adapt his methods of cavity preparation definitely to the requirements of each individual case. So also in the education of students for the practice of dentistry that the training of these young men should be of such a character as to educate their reasoning powers and cultivate the habit of independent thinking and to develop and ripen their judgment so as to enable them to meet the varying conditions which dental practice imposes rather than to train them merely to follow rules and axioms which demand an unquestioning adherence to authority and tend to narrow their modes of practice within the limitations of a blind empiricism.

In illustration of the difference in point of view which I have endeavored to portray I present for your inspection a specimen showing examples of so-called typical cavity preparation made in artificial teeth carved from bone and mounted in a phantom, the arrangement representing the mode of teaching cavity preparation to dental students largely in vogue in many of our dental schools.

In such a mechanical reproduction of the human denture the student is expected to prepare typical cavities, fill them in various ways, and in so doing learn the fundamental principles of operative dentistry. My criticism upon this method of teaching is that it not only is insufficient, but it is misleading in its implication that the range of cavities represented practically in the specimen before you largely covers the variety of cases that he will meet in practice and that such as he does meet in future practice are to be prepared along the ideal lines represented in the specimen under consideration.

In comparison with this typical or standard method I present for your inspection and consideration a series of specimens of cavity preparation and filling done by students in extracted teeth involving natural carious cavities. In my own opinion there can be no comparison in value with respect to the teaching efficiency of the two methods. The essential difference between them being that the first represents someone's ideal conception as to cavity formation, while the other represents cavity formation as it is in nature, and it is from this latter that we must develop our training of students in operative dentistry.

THE FIELD OF PORCELAIN IN RESTORATIONS OF DENTO-FACIAL IRREGULARITIES.

BY BERNARD BRAMM, D. D. S., CHICAGO.

Porcelain is indispensable, but it has its limitations.

To be cognizant of these limitations is at times a necessity, and this is very discouraging to the enthusiast. Yet success is never attained, nor can it ever be from "happy-go-lucky" tendencies.

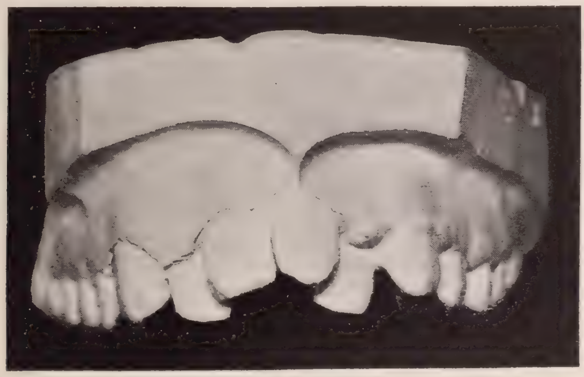

FIG. 1.

Not long ago a young lady was referred to me with the hope that I might be able to restore her normal features. The case is fully illustrated by the model Fig. 1.

Regulating without the sacrifice of one or two perfect teeth was out of the question. The density of the maxilla, the advanced stage of caries in the mesial and distal surfaces of the upper right lateral incisor, and the left central and lateral, the impairment of these organs from lack of function of ten years duration, accompanied by a pyorrhetic exudate, the age of the patient, and a short upper lip, made the case more discouraging to regulate from an esthetic point of view, since the teeth were markedly elongated.

And while some would attempt regulating without extraction, it is safe to assume that no set rule can be laid down and carried out successfully. Each individual case presents a different phase.

One should guard the patient's interests, and his own to the very best of his ability. Study of individual temperament, environment, age and occupation, are all cardinal points to be considered.

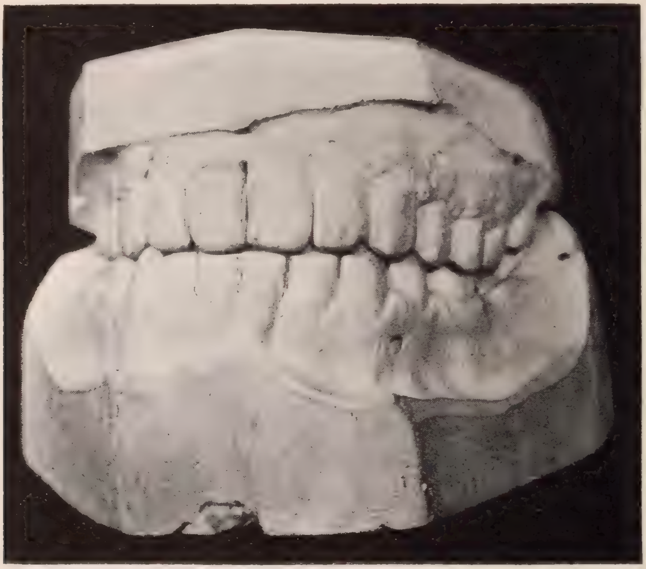

FIG. 2.

The public appearances of the young lady at frequent intervals as a vocalist was also an obstacle to contend with. The period for regulating (if at all possible) would have been one year, during which time a conspicuous appliance must be tolerated; thus my reasons for not making an effort to regulate were many.

After due consideration of the case I decided to destroy the pulps of the three decayed and mal-posed teeth, fill the root-canals and prepare them for porcelain crowns, bringing the crowns out into proper alignment.

After bands, floors and dowels were fitted, an impression was taken, model obtained, and two shades of flat back, long pin facings were selected; the laterals one shade darker than the centrals, and of a somewhat bulkier mold since the roots were considerably intruded, the central in turn very thin, the root of which was prominently protruded. These were then adjusted in alignment with the adjacent teeth, soldered with platinum solder and carefully prepared for receiving the porcelain. The construction of the supporting metal structures was the most difficult part of the case.

I employed the S. S. White high fusing porcelain for re-enforcement and in order to give these crowns a natural appearance, the following letters were used: R. for the entire linqual, D. for the incisal (R. is yellow and D. is gray), the facings were cream. Some gum restoration was necessary in the interproximal space between the left central and lateral incisors. The most beautiful results were obtained by using S. S. White's "No. 92 high fusing" pale-pink porcelain. The case as it appeared after completion is illustrated in Figs. 2 and 3.

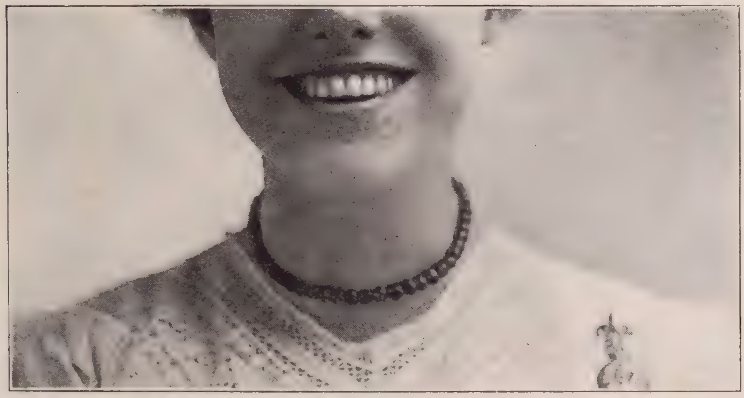

FIG. 3.

The result was very gratifying to me and also to the patient, but I wish to go on record as discouraging the indiscriminate excision of natural crowns for the purpose of adjusting artificial substitutes. A natural crown is preferable to an artificial one if it can be rendered sightly and serviceable, but here was a case where the conditions were such that this could not be done. Porcelain has great possibilities for the man who will study its peculiarities and fathom its secrets, and this case is cited merely to show what can be done with it under difficult circumstances.

REGARDING THE CONCERTED GOLD FILLING CLINIC IN CAVITIES IN BOVINE TEETH BEFORE THE ILLINOIS STATE DENTAL SOCIETY, MAY 18, 1910.

BY CHARLES SOUTHWELL, D. D. S., MILWAUKEE.

This has been suggested largely by the probability that the utility or practical application of the clinic may not be fully understood and therefore questioned in some directions. In other words I write to head off possible misapprehensions.

For the benefit of the readers who did not attend the meeting it may be explained that eleven operators were each provided with a freshly extracted bovine incisor, in the labial surface of which a round, flat bottomed cavity had been previously drilled by machinery. This was done by the same counter bore, to exactly the same depth in each tooth. The undercut in each was made by another tool. The subsequent slight squaring of the bottom of the cavities, done with a dental engine, was practically the same in each. It, therefore, may be said that the operators filled cavities that were exactly alike in all respects, thus eliminating the contention or excuse that "the conditions were not identical."

It was, originally, planned to have hand pressure, the hand mallet, the automatic, the mechanical and the electric mallet, each represented by two operators, but this was omitted in view of the lengthy and delaying character of the correspondence necessary to bring it about.

The dominating idea, underlying the inception of this work, touched upon later on, was the establishment of means of making definite comparison of the speed and efficiency of the several methods of condensing gold. That such a clinic is imperative, hardly needs mentioning in view of the discreditable appearance and indifferent success of the average gold filling. This is largely traceable, in my opinion, to the objection on the part of operators and the public to methods that are laborious or severe or both and has no reference to expert operators who have an amenable, discriminative, appreciative clientele. That the reason given is wholly inclusive I do not contend but for the one mentioned and many lesser, too many dentists have seen fit to adopt a hasty, glossing and otherwise uncertain technique.

The March *Bulletin* of the Illinois Society, in according a generous allotment of space to the matter of the test clinic, went on to state "on account of the important bearing and practicability of the demonstration in its application to every gold filling placed by every operator, etc." To some, this may have been construed to mean that the test could be applied to work done in the mouth. That is not the case, however. To those and to others, that gave but a passing consideration at the time of the clinic, it is, perhaps, well to explain that its practical application lies in the definiteness which it offers in the study of the comparative adaptability and solidity in the condensation of the different forms of gold, by filling cavities made in freshly extracted bovine incisors and then subjecting the fillings to air pressure while submerged in water. The non-adaptation of gold and the contraction of amalgams are revealed in a manner convincing beyond all cavil. To make this clear I must intrude the explanation that the flat floor of the cavity is more than half made up of a flat ended, brass screw, that is just flush with the floor at the center of the cavity. When the filling is ready for testing the screw is removed and its place is taken by the threaded connection of the air apparatus.

In order that the findings of the judges could partake of definiteness a schedule was adopted by which the operations could be scored as to excellence under the following headings, time, excess, margins, leakage and specific gravity as shown later on.

One of several reasons that led me into this work is the fact, that, at no time in the past, has any attempt been made to provide *identical* conditions in tooth structure under which several operators could do precisely similar operations. Those in separable steel matrices may be recalled, but as these had unbreakable walls and margins —thus permitting abnormal blows—nothing was established other than a comparison as to specific gravity. One or two other laudable attempts were made, years ago, to bring about a comparison by having operators do supposedly similar operations in the mouth, but as this did not permit the taking of the specific gravity, judgment was, therefore, based solely on the time occupied and an eye examination as to general appearances. This led to nothing more than an inconclusive discussion, which permitted the excuse or contention that the conditions were not identical.

At the outset I sought a matrix that promised to be reasonably friable and one that conformed reasonably to natural teeth. Experiments with bone, horn, ivory, walrus teeth, shell, celluloid, etc., ended in the adoption of bovine incisors. With considerable attention given to their selection they may be procured in prime condition and kept moist indefinitely. Being four times the size of human incisors they afford a bulk that permits the making of the cavities almost wholly by machinery and therefore practically identical in diameter, depth and undercut.

At this point I content myself with the statement that this establishment of identical conditions and the introduction of the air test for leakage is a long step toward definite and acceptable conclusions regarding all filling materials and methods.

The air test for adaptation is especially available for the definite establishment of the comparative adaptability of foil annealed, foil soft, cylinders annealed, cylinders soft, and the several forms of the open (spongi-form) gold, or their combinations.

Speaking of the concerted clinic itself I am sure that there can be no question as to its success as an entertainment, but as a basis for positive, scientific determination I am less certain. The fault was largely mine, however, for no attempt was made to hold the operators down to a normal blow other than to provide a supposedly friable matrix, but the bovine teeth seem capable of enduring unlimited stress as is clearly shown in some of the unprecedented specific gravities. Let no maundering be inferred from this. I came, I saw, and I could not wish to have a more agreeable set of gentlemen to assist in these efforts toward the establishment of some definite, worthy findings. More anon.

The clinic certainly resulted, at least, in the establishment of the fact that it holds a promise of good things for the future especially in didactic work in colleges, post graduate schools and in society work.

Just a touch of the history of this work. Three days before the plan had its first try out—before the Wisconsin State Dental Society in July, '09—I was taken with typhoid, leaving the details incomplete and in a chaotic state. My friends rallied and with the sympathetic aid of the Chicago contingent the work was carried on with sufficient success to warrant the clinic committee of the Illinois Society in having a repetition in Springfield. It is possible that some details of the latter clinic would have been more perfectly met had I been present at the meeting in Milwaukee.

Immediately upon receipt of the very flattering invitation last fall, a lengthy correspondence began between myself and Dr. Arthur D. Black, the most prompt and agreeable correspondent I have known. Toward the end, one or two details were "let go" as it were, under the belief that we could not expect to "hit it off perfectly the first time."

The arrangement of the tables in the form of a British square was an admirable, last minute suggestion, of Dr. Reeves, yet it unfortunately resulted in the placing of some of the operators where the light was poor, having, in all probability, considerable adverse influence on their score. In all likelihood some of the operators had other disadvantages to contend with. Dr. Johnson, Dr. Gethro and myself had very good light.

I am now down to the minute of the start. Johnson, in full possession of his constitutional ardour and champing at the bit, was the first to get away. Dittmar and the others, hearing the ratta ta tap in his corner, were immediately in headlong pursuit. The race was on.

Exeuent science. Enter personal equation.

The failure, on my part, to safeguard the scientific import of the clinic by, in some manner, attempting to hold the blows down to normal, most naturally led each operator to feel that he had no other alternative than to "go it." Under the terms of the clinic this was entirely permissible and, looking back, I do not see how any hand mallet operator, under the exciting circumstances, could have held himself down to a normal blow even if he had promised to do so with his hand on the Good Book.

Aside from the above the basis of percentages under the headings of time, excess, margins, leakage and specific gravity seems eminently fair.

In closing the subject of the clinic itself I take the liberty of making a few succinct observations—none unkindly.

In view of the speed in which he did the work, the fact (taken from the memoranda set down by the judges) that he did his own malleting together with the general excellence under every heading, the operation of Dr. Hoover shows exceptional manipulative dexterity. I understand that Dr. Boyce had to contend against moisture that crept in, in some unaccountable manner. I was afterward informed that one hand mallet operator had two assistants, one to pass, the other to mallet.

The four automatic operators took 35, 35, 35 and 43½ minutes, respectively. Agerage, 37. The five hand mallet operators took 23, 25, 26, 26 and 31½ minutes, respectively. Average, 26+. The deduction as to the possibilities of speed between these two methods is obvious.

The five hand mallet operations yielded the following specific gravities, 19.27, 19.16, 18.50, 18.63, 15.96. Average, 18.30. The four automatic operations yielded 18.67, 18.50, 16.36, 16.77. Average, 17.60.

In the above it may be noted that the average hand mallet operation caps the average automatic filling, both in speed and specific gravity. The former by ten and one half minutes. The latter by .70.

It is fair to observe, however, that while the comparison as to speed is reasonably conclusive the slight difference of .70 in the specific gravity is not seriously against the automatic for the reason that excessively abnormal blows are not as possible with that instrument as with the hand mallet.

It is but every day courtesy for me to admit that I had a slight advantage over the other operators through the fact that I had prepared all of the cavities personally. Even though the cavities were simple, round and flat-bottomed, the operators should have been given a longer time in which to, at least, compose themselves. But for the somewhat hurried start and the other reasons given I am certain that many of the scores would have been higher.

The introduction of time in the findings of the judges has been questioned more, I believe, than any one other feature. Some contended that it should have been omitted. I wish, however, to assume the entire responsibility for its introduction for the following lengthy reason to which I add some deductions.

If time was omitted and no credits given for speed or discredits given for slowness—had the operators, in other words, been permitted to take all the time they desired it is very safe to assume that the operations would have been practically equal and therefore nothing in particular established. In greater detail—for the point is very material—if the operators had been permitted to disregard time, the skill between these selected operators is so nearly even that the excess would have been equally controlled and each would have been credited with 100. The margins in every case, I am sure, would have been perfect. Another 100. Every filling would have stood the maximum pressure applied (60 pounds). Again 100. And as the specific gravities would have all ran high, none presumably less than 17, it is very plain that little else would have been established other than the fact that each operator, *without limit as to time,* could make a perfect filling. That is already known of each of these men. It would seem, therefore, as though the above should dispose of any contentions against the introduction of time.

It is not amiss, however, to call attention to the fact that time is the chief item, usually, in every bill rendered for dental services. It sequentially follows, therefore, that any expedient that will save the time and at the same time conserve the energy of an operator should meet with hearty recognition.

Next and last, under the subject of time. In the degree that an operator's time and energy are taxed, just in that degree is he tempted to slight his work. I merely say tempted. Per contra—in the degree that they are lessened just in that degree is he denied excuse for imperfection.

As a result of this test work, which has more than occupied my spare hours in the last year and a half together with the concerted clinic, I confess, a greater and growing respect for the hand mallet in the hands of expert operators. The operations at Springfield revealed an order of dexterity and speed that I had not believed to be possible with the hand mallet. Perhaps this would be better stated if I changed it to a greater and growing respect for the ability of the operators.

Another step. It is being fast borne in upon me that it requires greater skill with the hand mallet to succeed as well *in the same length of time* as it does with the power methods.

Another step. I am inclined to the opinion that if, in the early years of their practice, it had been the good fortune of these experts to have become fully acquainted with the advantages of the Bonwill Mechanical Mallet, reverted as described in my discussion before the Illinois State Society, May 19, 1910, their high order of manipulative dexterity would, with that method, enable them to now perform high class restorations in less time and with less energy.

It has long been and still remains my contention that the Bonwill Mechanical Mallet reverted to the style first issued by Dr. Bonwill and operated on an electrically driven all cord engine (Doriot head) together with the short points devised by him affords the best means for the condensation of gold from the "three in one" view of ease plus speed, plus efficiency. It is easier on the tooth, easier on the patient, easier on the operator and easier on the assistant. As to speed—rapid work may be sustained through many fillings with far less fatigue to the operator. As to efficiency it is moderate to claim that it may be used wherever the hand mallet is applicable (back action hand mallet pluggers excepted). In filling undercuts and especially in the covering of margins it is far more amenable, delicate and accurate than any other method at the same relative speed—*especially if fast.* As to specific gravity it is also moderate to claim that a specific gravity is attainable equal to that of the hand mallet in the same time or less if normal blows are used. I believe I have left nothing unsaid.

In my iterations and reiterations on these points I trust that I offer "thoughts that tryst instead of words that burn," and if through zealousness I brook displeasure in any direction I ask that it be remembered that my efforts are wholly impersonal. I merely hold in one hand another laurel for the brow of Dr. Bonwill and in the other a marked respite from toil.

That this disquisition may not seem out of place I venture an application.

To begin with it is very patent on the face of the score sheet of the Springfield clinic (submitted herewith) and under the rules governing the clinic that the hand mallet in the hands of two operators very neatly headed off the mechanical.

But it may be seriously questioned if this would have been the judgment if the blows of the hand mallet had been controlled to not exceed normal and if, in addition, by some means, the stress on the operator and assistant could have been scored.

I cannot conjure any plan by which the former could be met, other than the election of a specific gravity datum as set forth in the following four cavity proposal and as to the stress on the operator and assistant that, at best, could only be made a matter of empirical estimate—especially difficult if limited to one cavity. It would seem, therefore, that these two very important factors, being difficult of control or estimate, must be allowed to take care of themselves. I have endeavored to do so by extending the clinic from one cavity to four cavities under the belief that a finding is earnestly desired.

I have given the matter very earnest, careful consideration and believe it to be a reasonable proposition in that it promises to take charge of the personal equation as expressed in the abnormal blows indulged in by some of the operators in Springfield. (Subsequent to the clinic the latter was, most genially, admitted by Drs. Johnson and Dittmar.)

FOUR CAVITY PROPOSAL.

I would be very pleased to have Drs. Johnson and Dittmar or any two hand mallet operators they may nominate, each fill four cavities in concert, with me, before some society. Have markings made for time, excess, margins, leakage and specific gravity as at Springfield, with these two changes.

1st. Instead of separately noting the time taken on each filling have the total time set down beginning with the start on the first filling and ending with the last blow on the last filling.

2d. Empirically electing 17. as a specific gravity datum have 5 points deducted for every difference of .50 or major fraction thereof whether 17. or below 17. This latter condition is offered as a means of keeping the blows normal.

The finishing of all of the fillings to wait until after all of the fillings shall have been made. Each operator to have one assistant only. Said assistant to be the only one to wield the mallet throughout the entire number of fillings.

Should this proposition carry with it any suggestion of a personal contest I should indeed regret it. A more agreeable view would be to look upon it as an endeavor, through applied science, to establish the comparative merits of these two methods.

(The datum feature could be omitted and no limit be placed on the specific gravity, but allow no credit above 18.

Or increase the number of cavities to five, with no limit to the specific gravity or credit therefore. Either of these three propositions would be agreeable to me.)

It would furthermore be agreeable to me to change from the bovine incisors to pearl as a matrix material. In the latter substance, the margins are somewhat more friable which should make the clinic more acceptable to hand mallet operators, especially in view of the text book statement that the mechanical mallet "with points having sharp angles is exceedingly prone to chop or pulverize the margins."

If the hand mallet is as amenable, unerring, easy and, at the same time, more forceful and speedy than the mechanical then this proposal should meet with ready acceptance. Such a clinic, aside from its specific object, would enable the onlookers to study the methods and technique and thus arrive at individual judgment.

In closing I wish to, most heartily, thank the Illinois State Society and the gentlemen who entered the clinic for the very whole-souled reception given to these endeavors.

The introduction of freshly extracted bovine incisors as a matrix material has proven very acceptable and the compressed air test for all filling materials is indeed conclusive.

				Judges' Score in Percentages.					
Method.	Minutes	Specific Gravity.	Operators.	Time.	Excess.	Margins.	Leakage.	Specific Gravity.	Total
Hand Mallet.....	26	19.27	C. N. Johnson........	91	100	95	100	100	486
Hand Mallet.....	26	19.16	G. W. Dittmar.......	91	100	95	95	100	481
Mech. Mallet.....	27½	17.81	Charles Southwell....	86.50	100	100	100	85	471.50
Hand Mallet.....	23	18.50	J. L. Hoover	100	95	85	90	90	460
Engine Mallet....	30½	17.29	C. C. Corbet.........	77.50	100	90	85	80	432.50
Hand Mallet.....	32½	18.63	F. W. Gethro	71.50	100	95	70	95	431.50
Automatic	35	18.69	C. K. Sawyer........	64	100	75	65	95	399
Automatic	35	18.59	J. S. Reece..........	64	100	85	55	95	399
Automatic	35	16.36	J. K. Conroy........	64	100	95	65	70	394
Hand Mallet.....	25	15.96	R. F. Ludwig	94	100	80	40	65	379
Automatic	43½	16.77	A. E. Boyce........	38.50	100	95	65	75	373.50

The above percentages are for comparative excellence based upon 100 as the unit.

Following are the rules that governed the clinic in Springfield:

LEAKAGE: 100 points for the filling standing the highest pressure without leakage, 5 points less for every difference of 10 pounds, or fraction thereof, at which the other fillings show leakage.

SPECIFIC GRAVITY: 100 points for the filling having the highest specific gravity, 5 points less for every difference of .50, or major fraction thereof.

TIME: 100 points for the shortest time, 3 points less for every minute in excess of the best time.

MARGINS: 100 points for the best margins, 95 points for the second best, 90 points for the third, etc.

EXCESS OF GOLD USED IN PLACING FILLINGS: 100 points for least excess, 95 points for the next, 90 for the next, etc.

The final grading for the fillings will be the average of the points received under each of the above headings.

The specific gravities were made by Dr. G. V. Black who attended the meeting for that especial purpose.

It may be remembered that the same operators, as a preliminary, each filled a cavity, at home, during the month preceding the clinic in Springfield. No time limit was imposed and no note was intended to be taken of the time devoted by each operator. One operator, however, voluntarily stated that he devoted almost two hours and another two hours and ten minutes. The others gave no report as to the time.

Only nine were at hand at the time the air test was made and but one showed leakage at the margins up to 60 pounds. Two others showed leakage through the filling, one being very profuse before one pound of pressure was shown on the dial.

The above is a fairly conclusive support of my contention that all of the operators could have made tight fillings at the Springfield clinic if the question of time had been omitted.

The specific gravity of the preliminary fillings was taken by Dr. G. V. Black and presumably reported to the society.

AN INCIDENT OF LABORATORY WORK.

BY DR. L. P. HASKELL, CHICAGO.

My first eleven years of dental work was devoted very largely to the manufacture of teeth for our own practice and for dentists in New England.

They were carved sections, such as are now made in moulds. After the plates were fitted, principally gold, some silver, bites were taken and waxes were trimmed for length and contour, carving models made.

We prepared the materials from the crude feldspar and silex by placing in the furnace to heat real hot, then plunging in cold water so were easily broken in small pieces, and ground in a large quartz mortar to an impalpable powder, then mixed in proper proportions, some clay added and yellow coloring matter. This now could be handled like putty when properly moist. A piece would be worked into the carving model onto the plate, partially dried, the teeth were carved with a knife shaped like a pen knife. They were in three sections, the anterior and the two posterior ones.

These were biscuited in the furnace, trimmed as needed, holes drilled and pins inserted, teeth and gums enameled.

The baking was in large fire brick ovens, in 14 inch muffles, using the best anthracite coal.

The teeth were then ground to the plate, invested, backed and soldered. Before the introduction of gas, using an alcohol lamp and mouth blow-pipe, dentists were charged $12 per set. This preliminary to my story.

A dentist from a country town in New Hampshire called with models of upper and lower jaws from wax impressions, and asked me to swage gold plates, make and mount the carved blocks. There was no bite nor guide of any sort.

I told him I could do it but they would be worthless to the patient and must go back and form some kind of plate and arrange the waxes in the mouth. He very reluctantly went home but sent the models back two days later, saying he could find nothing to arrange waxes on, and the patient must leave town that week so I must do the best I could. Well I was up against it, but went ahead, swaged the plates, arranged waxes, haphazard, of course, made the teeth, finished them up, sent the bill C. O. D., believing, however, the work would be worthless.

I heard nothing from the dentist, but six months later he called. I asked him what he did with that set of teeth. Said he put them in the mouth and the patient was satisfied. Well it was a miracle, sure.

Dr. Allport used to say a patient could wear a chip in the mouth if they only made up their mind to it.

ILLINOIS STATE DENTAL SOCIETY, MEETING AT SPRINGFIELD, MAY 17-20, 1910.

DISCUSSION OF DR. BECK'S PAPER, ON "BISMUTH PASTE AS A DENTAL THERAPEUTIC AGENT."

Dr. Truman W. Brophy, of Chicago:

We have listened to a very valuable paper, the teaching of which I think will be appreciated by all who have made use of bismuth paste in practice, and to those who have not it will be commended as one of the most valuable therapeutic agents of modern times. Dr.

Beck's paper will be studied by those who have listened to it, and by thousands who have not. Recently, while in New York, Dr. Darby, of Elmira, came to me and expressed his appreciation of bismuth paste in the treatment of sinuses from dental and alveolar abscesses.

At the meeting of the National Dental Association at Birmingham, Ala., I read a paper on the treatment of certain morbid conditions of the mouth, and in this paper I called attention to the value of bismuth paste. Dr. Darby was not present at the meeting, but the transactions came to him, and he employed it, and he declared that certain sinuses that resisted treatment had yielded to one application of bismuth paste, formula number 1.

When Dr. Emil Beck first began to use bismuth paste it was not with the feeling that it was going to exert any therapeutic action on the tissues, but it was done for the purpose of outlining the course of the sinus, that he might by a skiagraph locate the source of the suppuration. To his surprise he found that the sinuses healed, due to the germicidal action of bismuth. Bismuth has long been known as a potent agent in the relief of congested membranes. In cases of gastritis and enteritis it has long been successfully employed. I doubt very much if those who first employed it appreciated its merits, thinking that it coated over the surface of the membranes, and thereby formed some protection, and prevented the irritation which would result from the passing of the contents of the stomach and intestinal tract over them. This, no doubt, was true to some extent, yet I believe the greatest benefit came from the destroying of the pathogenic micro-organisms which found lodgement there. It is known that it is of value in the treatment of enteritis and colitis, and it seems only reasonable when we bring this bismuth in contact with suppurating surfaces that destroying the germs, as it does, will enable the parts to recover.

A fine line of distinction has been made by Dr. Beck in his paper. If by the use of bismuth paste the diagnostician is able to differentiate between a disease that is malignant and one that is benign, the benign disease readily yielding to the action of the agent, we must class bismuth as an important factor in diagnosis. In times of war bismuth paste will be regarded as almost a sheet anchor in tracing the course of bullets and locating them. May we not say that had bismuth paste and skiagraphy been at the command of the surgeon at the time that President Garfield received his fatal wound, the bullet would have been located and removed, and the life of the President saved? The surgeon sought to recover the bullet, but never located it until the post-mortem. If in the treatment of the so-called pyorrhea alveolaris bismuth paste will relieve the patient we have discovered an agent of inestimable value to the profession, and far more so to the public. I would not quite agree with the essayist in saying that we need not irrigate the cavity before applying the paste. In my opinion every foreign substance, and we must call necrotic tissue a foreign substance, should be thoroughly washed away before the application of the bismuth paste is made. Someone may say: What becomes of the bismuth paste after the wound heals? It takes care of itself. You can wash it out with warm water, but it is better to let it alone. Nature will take care of it. After all, the important consideration in regard to this matter is the diagnosis. If a man knows the nature of the disease he can treat it. The books will tell him what to do. His fellow practitioners will tell him what to do, but to know what is the matter means coming in contact with the patient and studying the conditions manifested.

Dr. Beck speaks of the failure of bismuth paste in renal diseases or gout or rheumatism. There again we must bring up the question of diagnosis. We must first determine whether the patient has those diseases which would render the use of bismuth paste unsatisfactory, and to make such a diagnosis is not an easy matter. It only shows the importance of the dentist extending his knowledge so as to grasp these subjects, and to know more thoroughly the morbid conditions to which we are subject, and to make a diagnosis in a case of that character, and if need be, call in experts to assist in the treatment of the general physical conditions. If we are in doubt we should consult masters along certain lines, giving the patient the benefit of all the knowledge that can be had.

In my own experience I have found a good deal of satisfaction in the use of bismuth paste. As an instance, a patient had three sinuses in the cheek, said to have been due to necrosis of the mandible. I found there was no necrosis, but there had been a dento-alveolar abscess, having origin in the first and second molar teeth. Those teeth had been extracted, and yet the sinuses continued, and when traced to their origin it was found there were pockets of considerable size along the border of the bone without any material destruction of bone, and yet the pus found exit through the same old sinus that existed at the time the teeth were there. This shows that extraction of teeth will not always heal a dento-alveolar abscess. One injection of bismuth paste terminated the trouble.

I can see a great deal of benefit coming from the treatment of the Antrum of Highmore with bismuth paste provided it is in condition to receive it. My experience with empyema of the antrum is that in chronic cases about 85 per cent or 90 per cent have polypi, which in many instances almost or quite fill the cavity. In such a case bismuth paste would not be indicated. The polypi should be removed, and to do that it seems to me that the only logical course to pursue is to open the antrum to an extent sufficient to get in and remove the polypi, and illuminate the parts so that you can see that there is nothing to keep up suppuration. After that, if the membranes continue to secrete pus the placing of bismuth in the cavity is in my opinion correct treatment. In recent cases of antrum disease it is not necessary to put anything in it, except to evacuate the secretions and let it get well.

The paste may be efficiently employed on ulcerated surfaces. The essayist did not say that, I have no doubt, for want of time. If one of these indolent ulcers on the surface is washed and the secretions removed, bismuth paste placed on the surface and retained there, the ulcer will heal. How often I have seen ulcers on the tibia suppurating along almost indefinitely, where the circulation is poor. In such a case bismuth paste will destroy the pathogenic micro-organisms, and nature will have a chance to effect the healing. After all, we are dependent on nature, and we must place the parts in condition so that nature may bring about the repair.

It is interesting to notice the effect of bismuth paste on malignant growths. The assayist said in those cases it was not indicated, if I remember right, but it will have a salutary effect even in those cases. It will not cure, but we can do a great deal in bringing relief to the patient, and to make him more comfortable. Bismuth paste will be a standard remedy, and will be employed by us as such, and its usefulness will be extended until it reaches out to every man and woman engaged in the relief of human suffering. I believe that Dr. Emil Beck, to whom the world is indebted for bismuth paste, has accomplished a work that will be beneficial to mankind for all time.

Dr. W. F. Whalen, of Peoria:

My experience with bismuth paste commenced after the May meeting at Danville last year. I saw Dr. Beck's clinic. It looked good to me, and when I returned home I made up my mind that I was going to employ it in my practice. Thinking that it was put up in small tubes I ordered half a dozen of the tubes, and to my surprise I received enough of the paste to run a veterinary college. I have been doing a little missionary work with it, passing it out to my friends.

I believe bismuth paste has a permanent place in dentistry. I cannot discuss it from a scientific standpoint, but merely relate my experience with it. I have used it in Peoria to a limited extent with very satisfactory results where there were no systemic complications. To my mind there will be no permanent cure effected in pyorrhea where there are extensive pus pockets, because the pockets cannot be entirely removed. I have heard specialists make the statement that they cure pyorrhea. If they do, why is it that they come back in 30, 60 or 90 days? I think we do our patients an injustice when we tell them we have cured pyorrhea. We should give them to understand that we have the disease under control, so to speak, and we think we can hold it so, with their co-operation. In the use of bismuth paste in an alveolar abscess I find that where the roots of the tooth have been previously filled, I have been successful in treating through the sinus. Where there is a history of no treatment to the root I immediately open and try to get some bland solution through the tooth, under pressure, and if I can succeed I try with bismuth paste, warmed up, to force it through the tooth, but if the tooth has a history of roots having been filled I treat it through the sinus. I have a case where I removed the crown and injected bismuth paste 12 or 15 times through the root, successfully, and at the present time I am getting a muco-purulent discharge. I had x-ray pictures taken, which show up clearly where the root is denuded of membrane, and a pathologic condition at the apex of the root. When I return home I am going to still further try to save the root.

In the treatment of chronic alveolar abscess, if you have fistulas I believe you can have a favorable result, but in the treatment of abscess of the antrum I do not make any attempt at all. I have found bismuth paste very valuable after the removal of impacted third molars, being very much more satisfactory than packing with gauze. You can wash out the socket with a warm antiseptic, using considerable pressure with compressed air, and keep the cavity free from infection and the patient more comfortable than with the use of borated tape or gauze, and at the same time avoid the disagreeable odor accompanying packing with gauze.

Dr. F. B. Moorehead, of Chicago:

I am glad Dr. Brophy emphasized the thing of paramount importance in every branch of medicine, and that is the question of diagnosis. I do not know what Dr. Beck's mental reservations may be, but I am sorry he did not say something about the necessity for a specific diagnosis in every case. I am saying this to give Dr. Beck an opportunity to place himself right, because I am very sure that he did not want you to understand that he did not believe in a positive diagnosis before beginning his treatments. There is nothing half so important as diagnosis, and before we attempt any treatment at all, or approach a case from the standpoint of treatment we must be absolutely convinced of the character of the lesion we have to deal with.

Dr. Beck spoke of the findings of his brother, Dr. Emil Beck, the originator of bismuth sub-nitrate paste, and mentioned chemotaxis as being one of the influences exerted by bismuth paste as a curative agent. Chemotaxis is nothing more or less than the affinity or attraction exerted by a corpuscle for a foreign body or irritant and bismuth sub-nitrate is not as great a factor in promoting chemotaxis as many other agents. Bacteria introduced into the body always bring about the condition which we call chemotaxis.

I want to say a word of the toxicity of bismuth paste. It has a very positive toxic element in a few cases. While you will not come in contact with that factor, owing to the small amounts which you will use, yet in large cavities in the body it has been known to produce harmful, and in some cases fatal results. This may or may not be due to the arsenic sometimes found in bismuth.

The essayist states that his practice in treating alveolar abscess is to inject the so-called fistula with the sub-nitrate paste. I do not believe Dr. Beck intends to leave that idea with you. It is exceedingly bad teaching to give to young men. The very first thing you must do is to find out what the cause of that condition is. We are not warranted in using any agent until we know what is specifically responsible for the suppurative process. The very first step in every case that comes to us for treatment is, if possible, to have an x-ray picture made in order to determine just exactly what the conditions are. This may not always be possible because of local conditions. The practitioner who has no access to an x-ray laboratory is handicapped. The next step in every case where you have a chronic fistula leading from a root canal, is to remove the contents of the canal, and thoroughly disinfect it. When you have done that, and have introduced a perfect root-canal filling, and the suppurative process does not cease, then there is some responsible irritant beyond the root-canal. That irritant may be a roughened apical portion of the tooth. It may be a spicula of bone in a bone cavity surrounding the apex. It may be a broach or excessive root canal filling, etc., etc. So long as you have a roughened apex, a foreign body, or a spicula of bone in the walls of the cavity, surrounding the apex, the suppurative process will continue unabated, no matter how much bismuth paste you may inject. When I speak therefore, of diagnosis, I mean simply the location and definition of the cause responsible for the continued suppuration. I can conceive of conditions where you might have a lot of cicatricial or even granulation tissue which might be benefited materially by the injection of the paste, but to inject it into every fistula without first determining what lies back of the trouble is not good practice nor good teaching.

I want to answer Dr. Whalen briefly, because he said something I wish he had not said, and that is with relation to the practice of packing sockets after extractions. It is an exceedingly pernicious thing. The best packing known for a socket following an extraction is a healthy blood clot. In removing an impacted third molar, or any other style of tooth, in no case should the blood clot which quickly forms, be removed or disturbed. Leave it absolutely alone. In the event that it has become dislodged, or you have an infection to deal with, then and only then are you called upon to pay any attention to the socket. It is not good practice to wash out sockets following extractions. If the work has been done aseptically there is no call for after treatment of the socket in most cases.

A case came to my clinic recently which illustrates the limitations of bismuth as a therapeutic agent in Oral Surgery. The patient was a Russian woman with a badly infected maxillary sinus. The case was one of some months standing with an active formation and discharge of pus.

The first treatment instituted was the injection of bismuth paste using the No. 1 formula. This was continued for a period of six weeks, the sinus being filled with fresh paste at regular intervals. At the end of this period the case showed no signs of improvement. The patient was then anesthetized and the sinus freely opened. We found it—as you would expect—full of polypi. There were bony walls or partitions in the floor of the sinus, which formed pockets, and these were full of debris. The sinus was freely curetted and all of the contents removed. Bismuth paste was then introduced, and in a short time the case cleared up beautifully.

I have submitted half a dozen cases to this line of treatment, and in every one the paste was a total failure until after the sinus was thoroughly curetted. As long as the sinus contains polypi or any foreign substance the bismuth treatment will fail utterly. Therefore the first step is to determine the condition present, by means of the x-rays and other diagnostic agencies, and second, to thoroughly cleanse it. There is no other dressing half so good in the maxillary sinus as bismuth paste after it is ready for it. It is far superior to gauze, or any other form of dressing.

Another valuable use for bismuth paste is in large bone cavities. It keeps the cavity sweet and clean and when the patient returns, instead of having foul smelling gauze dressing to remove, you simply add a little more paste. As to the use of the paste in treating pyorrhea, I do not know anything at all about it.

I am forced to repeat what I said at Elgin, at the meeting of the Northern Illinois Dental Association, that I do not believe there is a great deal of merit in bismuth paste as a germicidal agent. As a dressing in suppurative processes in bone cavities it is an exceedingly valuable agent, and I want to pay a tribute to Dr. Emil Beck for giving it to the medical profession, even though it was done accidently, and I want to pay a tribute to Dr. Rudolph Beck for passing it on to the dental profession, but gentlemen, it is like everything else; it is useful only where it is indicated, and if you use it any place else you will come to grief.

Dr. Arthur D. Black, of Chicago:

I wish to call attention to the fact that Dr. Beck has done a whole lot of work in connection with this subject, and whenever a man does that, no matter how much we may be in favor of or against the particular proposition, he should have credit for the effort he has made for the advancement of science. It is the kind of work which eventually enables us to get at what we are or are not accomplishing.

The phase of this question which I wish to discuss briefly applies to the treatment of chronic alveolar abscess and pyorrhea, and also emphasizes the importance of a careful and accurate diagnosis in both conditions. When we extract a tooth we have as a result of that extraction the absorption and disappearance of the peridental membrane, also the bone of the alveolar process which supported that tooth, demonstrating that the peridental membrane and alveolar process should be considered as practically part of the tooth. We also know that when a portion of the peridental membrane is detached and remains unattached for a considerable length of time, those peridental membrane fibers, and also the bone to which they are attached, are absorbed. We must remember that cementum is not identical with bone, and when the peridental membrane remains unattached for a considerable time, there is no process by which the peridental membrane can be re-attached to the cementum. Therefore, when we say we cure those cases we do not mean that we cure them in the sense that we have a re-attachment of that tissue. The discharge of pus may discontinue, but we cannot effect the re-attachment of that membrane. It is therefore of the utmost importance that we determine, before we institute treatment of any kind, to what extent the peridental membrane has been destroyed. If it be a case of chronic alveolar abscess or a case of pyorrhea, it is our first duty to know the condition of the tissue with which we have to deal and institute treatment in accordance with our findings.

Dr. W. H. G. Logan, of Chicago:

We do not cure pyorrhea any more than we cure a tooth that has a cavity in it. The decay may start again in that same tooth, and it may start just where you put the filling in. If you cure a case of pyorrhea you don't make it normal any more than when you put the filling in, and pyorrhea may start on the other side of the same tooth or in the old pocket.

Now in reference to any paste being put in a pocket for pyorrhea before you remove the deposit, if it is of any value that is the worst place to use it. If bismuth paste is put in a pocket because it removes irritation, don't put it in at first because the tissue contracts down around that deposit, and you can't get at it. Never leave a pyorrhea pocket until you have removed every bit of deposit in it. However, in those cases where we want to prolong the life of a tooth, where the bifurcation is extensively exposed, and all deposit has been removed, I believe we are warranted in the use of bismuth paste and you can use it, or a dentifrice of similar nature which will aid in making the tooth more comfortable, but such a tooth is not safe for long, and you should tell your patient so when the case is under treatment.

In stating the case briefly, I will say that after employing bismuth paste in the treatment of surgical and dental lesions for a period of twenty months, I have reached the point in its use where I only employ it in less than 5 per cent of the cases treated and then only after the deposits have been removed.

Dr. J. P. Buckley, of Chicago:

Dr. Moorehead emphasized the points well in his discussion. There is a place for bismuth sub-nitrate in the form of ointment in the practice of dentistry, but it may be used at times when it is absolutely contra-indicated. The thing Dr. Beck forgot to emphasize, and I presume he did so intentionally, was the diagnosis. I might be led to believe he forgot it had he not advocated the forcing of bismuth paste into the antrum of Highmore before proper diagnosis had been made. There ought to be a rule in all therapeutics, that whenever there is pus, the very best way to dispose of it is by mechanical means. Pus should be evacuated, and if the cavity of the antrum is filled with pus the very best way to dispose of it is to open into the antrum, and let it drain. Then you can see whether you have some foreign body in the antrum which should be removed by surgical means.

Dr. Whalen spoke of the curing of a case of pyorrhea. The word "cure" is a relative term, and you ought to explain to the patient what constitutes a cure. You should tell the patient that the tooth can be made comfortable, healthy and useful. If you tell the patient that he can have the peridental membrane re-attached, and that the alveolar process will be renewed, you are telling him something which will not take place, but you can tell him that the tooth affected can be made healthy, comfortable and useful. There are three means by which a badly affected pyorrhea tooth may be made useful. Those three means are surgical, medicinal and mechanical. You can make your tooth, by means of surgery and drugs, healthy and comfortable for a time, but it will never be useful to the individual unless you employ mechanical means. Now bismuth paste is one, and only one therapeutic agent that can be used in the medicinal treatment of pyorrhea, and I was sorry to hear Dr. Whalen say that at last he felt that he had a therapeutic agent that would cure pyorrhea in so far as pyorrhea could be cured.

Dr. Beck (closing the discussion):

I am much surprised at the discussion of Dr. Moorehead. In the first place he emphasized the toxic effects of the paste. Now, gentlemen, there is no man in the dental profession who can show me a case of toxemia due to bismuth paste in dentistry. Dr. Moorehead said he knew of fatal cases. I differ with him. There are two or three cases on record in general surgery, but not in dentistry. They were published by Dr. Emil Beck, of Chicago. He presented the subject in order to caution the medical profession against overdoses. The most bismuth paste we inject in dentistry is, say, an ounce in one case. I have used more than an ounce, and I haven't seen any toxic effect. Gentlemen, you may discard the question of toxic effects of bismuth paste in dentistry entirely.

Now it was complained that I did not emphasize sufficiently the necessity of diagnosis. You all know how to make a diagnosis of alveolar abscess. If I should advise diagnosis by the help of radiographs I would be considered extravagant. Men in the city, who have x-ray apparatus within a stone's throw do not have skiagraphs made, and why should you expect the men in the country to do it?

Dr. Buckley brought out a very important point which I would like to touch upon, namely; what is meant by cure. I do not promise my patients that I am going to restore the peridental membrane, or other impossibilities. I have already stated, that a cure does not constitute a perfect condition, but a healthy condition. When I remove a portion of the peridental membrane I do not expect to get a new peridental membrane, but I do get a healthy condition there. I have reports of hundreds of cases of dentists from all parts of the country who have followed this method, and they have obtained good results.

Dr. Brophy, of Chicago:

In bismuth you will find oftentimes arsenic, and the arsenic which is often part of the bismuth is in my opinion largely responsible for some of these conditions which have been described as a destruction of the tissues.

Dr. Beck:

There was such a condition, but that has been eliminated. No one needs to fear the element of arsenic.

DISCUSSION OF DR. WARNER'S PAPER, ON "THE PRESS AS AID IN EXTENDING THE DENTAL FIELD."

Dr. F. B. Brooking, of Macon:

In the paper just read we have heard both sides of this question ably, if tersely commented on, by such professional gentlemen as Drs. Kirk, George Wood Clapp and William H. Trueman, all three have expressed themselves so well that as one reads, each comment seems correct.

Then, when the paper passes to the author's plan of publicity through the press, I do not see how the matter could be handled any better, for certainly a large proportion of the public are ignorant and negligent in the care of the teeth, and do not accord the dental profession the dignified and honored position, to which its learning and skill justly entitle it. In my opinion the public need instruction in regard to what causes decay of the teeth, and how to take care of the teeth and mouth in such a manner as to prevent pyorrhea. This instruction should be short, sharp, and expressed in language the public can readily understand, and none of it contradictory.

This instruction should be condensed into such form that it could be practically taught in works on hygiene in the grammar grades of our schools or even a little earlier. One thought that the paper conveys is that all this should be done by a united, ethical, dental profession, and we must keep that in view always, and all act on it.

I see no objection to the plan of developing the dental field as outlined in the paper, and personally I believe it would be a good plan to include instruction on Fletcherism and how to use the teeth properly. After all one of the best ways to develop the dental field is for all of us dentists to do the every-day operations in the office in such manner that these operations remain a standing recommendation for the whole dental profession, that is, if you take out a pulp, take it all out instead of two-thirds.

If you make a filling, make one that looks as well ten years after it is put in as the day it was made.

If you make a gold shell crown, make one with proper contour and tight contact points instead of a tomato can. If you make a detachable porcelain crown get a decent joint between the end of the root and the crown by some process.

If you make a set of artificial teeth make them look like teeth, instead of an excuse.

Dr. C. N. Johnson, of Chicago:

This is a paper full of suggestions on a subject just now prominently before the profession. I hear a great deal said about different methods of educating the public in regard to the necessity for the proper care of the teeth. That subject is now in the air, not only in our profession, but outside of it, and I want to cite a certain instance that happened a few months ago to illustrate this. The editor of one of the large popular magazines of the east, in the course of correspondence, asked me as to what I believed would be the most suitable subject for publication in his magazine at this time. I told him that I believed an article on the proper care of children's teeth would do more good than anything else. He asked me to write an article of that kind, and I wrote a short article of 1,700 words and sent it in. It was accepted at once, and liberally paid for. The point I make is this, that five years ago you could not have got an article of that kind in a magazine by paying for it. The question as to how we shall educate the public in regard to this matter has been discussed in many different ways, and many plans have been advocated. I am an advocate of all kinds. I commend what my friend said, that the thing that will develop dentistry best is to do good dentistry in the offices. A man who had a tooth filled thirty or forty years ago, and still has that tooth in his service, is a good advertisement for the dentist.

Now we can also extend this propaganda by means of the pamphlet which the State Society is getting out, and by means of public lectures. The women's clubs are beginning to take this matter up, and when you carry it into the hearts of the mothers you are doing the best benefit of all. They are asking for men to come before their clubs and enlighten them.

The plan outlined by the essayist in regard to the public press, if carried out in the right way will, I believe, do a great deal of good. A word of caution probably is necessary, that no personality must be allowed to creep into a movement of that kind, as that might be fatal to it.

Something that always comes up in these discussions, and it must be a prominent idea in the minds of most of the speakers, is this, that whether this propaganda is carried on by means of the financial support of the dental supply people, or by our individual or society effort, the prominent idea is emphasized that it is practice building, and for the benefit of the dental profession. Our aim should be in the direction of being more useful to the people. If we follow it up on that line neither you nor I will ever suffer in a business way.

Dr. Robert Goebel, of Lincoln:

It is undoubtedly the duty of every dentist, whether he is so fortunate to possess a large practice or not, to lend his assistance in extending the usefulness of dentistry as much as possible. It is a lamentable fact that less than fifty per cent of Americans have their teeth attended to properly, and this despite the prominent position we occupy among all the civilized nations of the world. With all the opportunities for enlightenment the American people possess it would seem that perhaps all that could have been done was not done. The dental profession has made such great strides in the general advancement of the world that it has kept the average practitioner busy to keep up, with little time to spare to see what others are doing. But the public is awakening gradually to the advantages of oral hygiene and it becomes our duty to assist in every proper manner. It has been said the pen is mightier than the sword. As is suggested by the title of the paper the judicious use of the pen would probably be the most direct way to accomplish the end. An unselfish, noble-minded spirit should guide us. Eliminate anything that may savor of commercialism. Jealously guard against anything that may lower our ethical standards. I would like to see the Illinois State Dental Society take up this work rather than any individuals.

Dr. C. E. Bentley, of Chicago:

It was twelve years ago, under the auspices of the Chicago-Odontographic Society, that I was appointed on the committee to investigate what the large cities had done in regard to the care of the teeth of the children in the public schools. An investigation was carried on extending over a year, and the results were published in The Dental Review the following year. After that there were a number of sporadic attempts to interest the public in the teeth of the school children. After the movement had attained publicity the editor of one of our city dailies sent a reporter to my office, and he said to me: "Dr. Bentley, what graft is there in this thing for dentists?" When I explained to him that it was a philanthropic movement on the part of the profession, he said: "I can't understand how any group of men can do anything of that sort unless there is some graft somewhere." Now twelve years have elapsed and, as Dr. Johnson says, it is in the air, and efforts are being made for the dissemination of knowledge necessary for the proper care of the teeth of children and adults to such an extent that it has become epidemic throughout the country. Truly, it seems to me that the profession is coming into its own, and in that regard we must not ignore the one man who has done more than any other in this country towards its consummation, and that is Horace Fletcher.

I want to say that aside from the recommendations made in the paper, I think some other means should be adopted. First of all, lectures should be employed, and we should use pamphlets wherever we can. Also I think the press should be used. I think that it is one of the greatest means of disseminating knowledge, but it should be used with caution, with a supervising committee created by this society, as well as by the local societies. It should be under the supervision of people that can be trusted, men who have been tried. If you get the children of a public school interested in this thing, that becomes a focus of infection, because it is carried to the home, and the mother and father become interested. The home is the unit of civilization and culture in this country. There are men who have been trained along these lines, and they ought to be put in such service.

Dr. Edmund Noyes, of Chicago:

As I listened to the paper, in the inspiration of the moment it seemed to me that the plan of publicity in the newspapers was the most practical one I have seen proposed. The success or the failure of it would depend almost entirely on the character of the articles written for the purpose, and perhaps that would not be a very difficult question to solve.

There is another aspect of these matters I want to say a word about, namely, the propaganda of several of the dental journals under the heading of practice building. Most of these articles seem to me sensible, and in the main true. The suggestion that they emphasize the commercial side at the expense of the professional side is somewhat mitigated by the fact that for thirty or forty years we have been practically ignoring the business aspects of practice. I do not believe it is the desire of these people to in any wise lower or minimize or neglect the professional aspects of the practice of dentistry. What I regret most has been something of a lack of discrimination and apprehension of any difference between the advertising of a commercial business as distinct from the proper methods for publicity and advertising of a professional business. I was very much surprised, and somewhat grieved that the *Digest* should quote as it did from Elbert Hubbard. It is a low down screed, and not worthy of allusion here. It absolutely ignores all of the higher and nobler and spiritual elements of human life. It not only ignors but repudiates all distinctions between advertising and publicity for commercial and professional business. It leads one to feel that he shares the rather too common feeling apparent occasionally on the part of most persons who are connected with the public press, to the effect that they ought to be able to levy tribute upon the professions of law, medicine and dentistry, and through them upon the public whom they serve, in the same manner and to the same extent that they levy tribute upon dry goods merchants and the customers whom they serve. This publication in the *Digest* comes the nearest of anything I have seen to an indication that at least one journal is under the too positive influence of the dental supply houses rather than under the control of the professional dentist who edits it.

Dr. C. R. E. Koch, of Chicago:

We are doing a work in this society that was started thirty-five years ago. At that time a committee of the society published a booklet for the education of the public, to be distributed by the members of this society, and it did great good.

I simply want to call attention to a quotation that was made by one of the speakers, when he said that the pen is mightier than the sword. That quotation has been frequently made, and it has always gone unchallenged. Bulwer never said that alone, without the context, and I want to insist on the context now. Bulwer said: "Beneath the rule of men entirely great the pen is mightier than the sword." I think that is applicable here, and I wish to say that beneath the rule of this society the education through the press would be of great benefit to the public.

Dr. J. S. Reece, of Bloomington:

The McLean County Dental Society has been working hard along this line in the last few months. I visited the McLean county superintendent of schools, Prof. B. L. Moore, and told him what the society was endeavoring to do for the children in the schools of Bloomington, and if he would permit it we would see that there was a competent man to give a practical lecture on dental hygiene at the McLean County Teachers' Institute. He replied: "I am glad you have suggested it and think it a good step in the right direction. You are welcome, and can send a man." Incidentally mentioning the expense he replied: "We are willing to pay that expense should there be any." This is in harmony with what Dr. Noyes has just said, and I am glad that the state society is endeavoring to do something in this direction.

Dr. E. K. Blair, Waverly:

Let me remind you that one of the most potent forces we find today in the public press is the parallel column. The author of this paper and others are calling your attention to the fact that the daily press is being improperly used, and what we need is the parallel column to call the attention of the public to the true situation. I believe that the press means to deal fairly with the public, generally speaking; that editors have proper sentiments upon these subjects, and that as a business proposition, they also enjoy a proper revenue. Let them have the revenue, but let us not abandon the field to the advertisers. I agree with Dr. Bentley that it is urgently necessary to exercise great care in selecting matter for publication. If possible our contributions should be a credit to the profession, pleading first the welfare of the public, and secondly, our own cause. This cannot be done in a day, and it must be done cautiously. We must not put ourselves in the wrong light, and to that end I would suggest that great care be taken by those committees.

Dr. F. J. Ryan, of Chicago:

I wish to add a little of my experience in the private schools of Chicago. I have a little daughter who attends kindergarten, and I asked her what was the first thing she did. She said it was inspection. She said that consisted in asking the children if they were properly dressed, and their hands were clean. I took up the matter of the teeth with the teacher, and to my surprise I found that three out of the 25 or 27 children used the tooth brush regularly. I went a little farther with the teacher, and got her to ask the children every morning if they had brushed their teeth. At the present time each child answers, "Yes." I wish to suggest that a proper line of questions be formulated by the committee for school teachers.

DR. C. B. MEADE, of Chicago:

I think that the public press has been used by the quack too long. It should be in the hands of the dental profession.

DR. WARNER (closing the discussion):

I wish to thank those who have so ably discussed this paper. My attention was first called to this subject through an advertising dentist, who gave up advertising in order to enter our society, but complained that we did not offer enough in exchange for the profits of his advertising.

I wish to emphasize a remark made by Dr. Koch about the pen being mightier than the sword. Booklets will be given out practically only to those who come to our offices and then are often destroyed before they are read, but this will reach the people who do not come to our offices at all. According to statistics, one person in ten gets the work done as it should be. If two in ten would get their work done, it would double the dental field.

In a paper yesterday, the high standard the Illinois State Dental Society occupies was discussed. I wish it could be maintained, and that we could do better work for more people.

The point is well taken by Dr. Johnson, that we should not do this work for the money involved. We are doing this work for the honor of our profession, but the beauty of this proposition is, that while we are doing the one thing, we are doing the other also.

Dr. Blair's point also deserves special attention. The advertising dentist has so preoccupied the field, that people do not know what good, first-class dentists are, unless they go to the offices and talk to them. It would be very easy in this manner to educate the public to the difference between the work of the advertising and the ethical dentist. If we have the united effort of the society behind us I do not see any reason why this matter should not be successfully taken up, and there is no reason why we should not get immediate action. I feel sorry for the dentist in the small town, who has no chance to educate the public.

THE AMERICAN DENTAL SOCIETY OF EUROPE, THIRTY-SEVENTH ANNUAL MEETING AT PARIS,
MARCH 25-28, 1910.

DISCUSSION OF THE PAPER BY DR. LUCE ON "MANDIBULAR MOVEMENTS AND THE ARTICULATOR QUESTION."

Dr. Oscar T. Wayne (Zurich):

Said in the beginning of his paper Dr. Luce very modestly stated that he had read a paper on Mastication before the freshman class at the Harvard Medical School in 1889, but he did not say that he was the first to recognize that the condyle path sloped forward and downward, a very important step in advance in the theories held up to that time, and the theory upon which all modern anatomical articulators were constructed. Dr. Luce's other theory, deduced from his observations, that there was no fixed axis of movement in the mandible, and that the movements were subject to the action of the various muscles co-operating with and antagonizing each other, was confirmed in 1896 by Walker, who attempted to utilize that theory in his articulator, and also by Gysi a few years later. He was very glad that Dr. Luce had brought the matter up again as it would assist in understanding Gysi's theory that the center of rotation in lateral movements varied in different individuals. Both Gysi and Walker only held that theory in regard to lateral movements. There was, as Dr. Luce stated, considerable variation in the relative movements of the condyle, and it was therefore necessary to have an articulator which would reproduce individual movement. Dr. Luce maintained that it was necessary to record but a very small part of that movement and quoted Gysi to the following effect: "Not until both dentures have been set up in approximate correctness with the help of the hinged joint may we proceed to arrange the teeth so that they may occlude properly in lateral movements. The teeth on one side are slightly warmed and a lateral movement is made when the teeth are closed in that position—in this way they will be pressed into their proper position." Dr. Luce thought from that that it was evident their was no further use for mandibular movement than that which occurred between the closed bite and the articulation which took place between the cusps of the molars and the bicuspids in the lateral movements of mastication, and that an articulator which would reproduce those conditions and the correct curve of action between the two would seem to be ideal. He ventured to disagree with him, because unless the cusps were very short and there was very little overbite, almost the full length of the condyle path was needed on an articulator to allow that movement. It could be tried on any articulator. A lateral movement strong enough to allow the lingual cusps of the upper molars to mount to the summit of the buccal cusps of the lower molars needed very nearly the whole length of the condyle path; and it was also necessary to allow for the backward movement of the condyle. Dr Luce stated that he was a poor doctor who pronounced a disease and offered no remedy. The remedy Dr. Luce gave in the shape of the Simplex articulator, and at the first glance it seemed to be the remedy needed. The articulator was simple in construction and there should be no difficulty in handling it after the preliminary work of securing the records of movement had been finished. He himself did not like any method of securing the records of masticatory movement by means of such an uncertain and soft material as wax, depending upon the ability or willingness of the patient to carry out any mandibular movement desired. It was that very willingness of the patient to help that caused him or her to protrude the mandible beyond its normal position in endeavoring to produce correct lateral movement. He feared there would be more than one channel on Dr. Luce's biting plate. Perhaps that did not matter so long as the proper channel was there, and the patient would if given time enough inadvertently produce proper masticatory movement. But granting that the proper tracings had been secured, that everything was prepared, and the operator was ready to start to set up the teeth—how was he going to prepare the teeth? In the old way, the hit or miss style? Dr. Luce doubted whether the Gysi articulator was not accurate enough and therefore he surely wanted accuracy. It was said by authorities on the subject that a strongly inclined condyle path indicated a strongly curved denture and that a slightly inclined condyle path indicated a slightly curved denture. If the inclination of the condyle path was not known the curve to be given to the dentures would have to be guessed and another guess would have to be made when preparing the masticating surfaces of the molars and bicuspids. Then the overbite had to be considered.

Dr. Gysi in the *Dental Cosmos* of January said: "In cases where the balancing points lie outside of the condyle, the mandible and lateral movements moves at the same time strongly forward. As the lower incisors are, however, somewhat hindered by the overbite of the upper incisors, the mandible glides downward and outward on the lingual surfaces of the upper incisors; consequently a longer overbite of the canines and higher cusps of the molars are necessary in order that the teeth may not move too quickly away from each other. When, however, the positions of the balancing points lie inside of the condyle the lower incisors move forward less obliquely and almost directly sideward, whereby for some distance the contact with the upper incisors is secured. Consequently the overbite may be less and the cusps of the molars may be lower."

Dr. Luce had generously expressed his approval of Prof. Gysi's work and articulator, but stated that he doubted whether the articulator admitted of actual reproduction of mandibular movement because ready made condyloid paths were used. That needed explanation. Professor Gysi selected from a large number of condyle paths four average forms which he thought would allow fairly accurate work to be done. (Dr. Wayne made a drawing of one of the most common forms of condyle paths in order to show that it was not so important to have the exact form.) From that it would be seen that it was the inclination that was of most importance and also that it was not so important to complicate matters by making a special condyle path guide for every case. The measuring of condyle path determining the angle, and the measuring of the lateral movements, could be done in about the same time Dr. Luce took to obtain his records of lateral movement and prepare them for his Simplex articulator. In the *Dental Cosmos* of March there was a very complete and scientific treatise on the proper preparation of the masticating surfaces of the teeth, and it showed the necessity of doing that part of the work as accurately as possible. In closing, he thanked Dr. Luce for stimulating thought in the right direction and hoped that with his mechanical ingenuity he would be able to add something in the way of measuring appliances that would show how to obtain the angle of the slant of the condyle path and the position of the balancing points from the bite plate. Then it would be truly said there was an ideal remedy.

Dr. George Northcroft (London):

Congratulated Dr. Luce on bringing forward a subject which deserved a great deal of attention, for any method that enabled dentists to give comfort to patients by means of artificial teeth articulating correctly was a great benefit. It was difficult to criticise the actual apparatus that Dr. Luce had produced without giving it a practical trial. One of the chief points that had struck him was that, as far as he could make out, Dr. Luce allowed for no directly forward movement of the mandible, which was a movement that was very often found in patients and which had a tendency to tilt down upper plates. Dr. Luce seemed only to have dealt with the lateral movements of the mandible. He agreed it was necessary an approximately correct condyloid path should be traced, and in his own laboratory he had been perfectly satisfied with the modified Grittman articulator and the use of the Snow bow. As Dr. Luce had clearly pointed out, in all anatomical articulators one could only hope to get something approximately accurate, and the condyloid path traced by the latest form of the Grittman articulator he thought was sufficiently accurate for all practical purposes. One of the difficulties that had struck him about the use of Dr. Luce's articulator was that although he might be able to get accurate movements with his four points, it was a very important thing to get the correct distance from the condyle to the point of the jaw in each patient so that the radius of movement should be correct. Another point that had been brought up by other writers on the subject was this: Morton, for instance, in a criticism of Dr. Franck's work, claimed that the line of movement of the condyle should be at an angle of 32 to the horizontal and that that was practically constant for all purposes. It was also of extreme importance to get the curve in proper relationship to the depth of the condyle. The ascending ramus differed in different people so much that it was very necessary to gauge as accurately as possible the exact position of the line of the jaws. He hoped that the work of accurately articulating artificial teeth would be earnestly taken up. He might say in reference to artificial teeth that there were now on the market teeth adapted for use with anatomical articulators and teeth that obviated the great difficuly of the enormous amount of grinding that had to be done in correctly articulating the cusps when using an anatomical articulator. The teeth were made from models of an English dentist and were manufactured by an English company, but they were well worthy of consideration.

Dr. Luce:

In reply, said there was one point he should like to try and make clear. The scope of his paper would have been too large if he had gone into all the intricacies of the normal denture. That was a point he had avoided and he might be pardoned if he did not go into it in his reply. His primary intention had been to point out briefly and simply the usual movements of the mandible, and to suggest a simple and possibly effective method of applying them to the articulation of artificial teeth. Dr. Wayne had suggested amongst other things that the method did not allow sufficient lateral movement. He had tried to make it clear in the paper that it recorded whatever movement the patient made, and if the movement was small in the particular case that would be registered. If it was a large motion that also would be registered. He would not dare to present anything totally untried and therefore he could say that in biting into the impression material the material surged up somewhat on either side so that the reproduction of the bite always allowed the teeth thoroughly to clear themselves and at the same time the cusps came normally in contact. He had never tried wax. What he suggested was impression material, which was a little more reliable. If a patient first made the normal lateral movement, biting always into the middle, it was quite remarkable what a good result was obtained. The impression material should be placed in the mouth and the bite made first with the lateral movement to the left and then to the right and it would be found that the teeth were moving after a few minutes in a certain groove. With regard to the condyloid plates of Prof. Gysi he had nothing but praise and wonderment for his wonderful articulator. He only ventured to express a doubt as to whether it was absolutely perfect to each individual case. It may be it was accurate enough; it certainly produced very beautiful results when properly used. With regard to Dr. Northcroft's remarks, the apparatus was absurdly simple, but of course put into the hands of a stupid mechanician the results might not be so accurate, although even there there would be more likely a better result than with a more complicated apparatus. As to the reaching forward of the lower teeth in biting, the patient was not encouraged to bite in any particular direction. The head was brought back so that the lower jaw was drawn inwards and the patient requested to bite in the usual way, and after the central bite was once definitely taken it was not a difficult thing to request the patient to bite with a lateral movement. So far he had experienced no great difficulty. He believed it was a mistake to work out an articulator from the actual anatomical plan of the mandible working against the articular eminence provided the actual relations could be obtained which existed in the masticating movement. If that record could be obtained by simply taking a bite it was much more accurate than taking four or five movements and adapting them to one of four normal plates with registration on a scale. He might be incorrect, but he should think there would be a large element for a possible mistake.

DISCUSSION OF DR. KIRK'S PAPER, "STANDARDIZATION IN DENTAL TEACHING."

Dr. George Cunningham (Cambridge):

Thought Dr. Kirk had given the Society one of the most illuminating addresses it was possible to give. Men were too much occupied occasionally with the mere question of the moment, the latest porcelain inlay or other things. He had followed the practice of dentistry, and both in lecturing and operating he had had the idea of prevention of decay or "extension for prevention." Quite recently he had the opportunity of making a new experiment, about which he was to read a paper to the Society, and as the result of experience the question of extension had come up, and in his paper he was going to show the result of what had been done where no extension had been made for the prevention of decay. Dr. Kirk's paper looked at the question more from the point of view of the treatment of adults and in his own paper he was going to show what could be done for the children. He was sure that every member of the Society was proud to have an American come before them with such an excellent, well balanced historical paper. He should like to see a new chair added to the schools embodying Dr. Kirk's ideas, and as first occupier of the chair he would suggest Dr. Kirk.

Dr. N. S. Jenkins (Paris):

Said there were two points to which he should like briefly to refer, one being historical. Probably it had been the privilege of few gentlemen present to have seen the method of operation in common use in Russia some sixty years ago. Upon his first going to Germany in 1865 he was fortunate enough to have a considerable Russian connection and he was astonished to find that a very great number of Russian patients had been treated within the previous twenty-five years by filling the teeth in a very radical manner. The distances, for instance, between upper incisors where decay was not by any means uncommon, were as great as the original cavities of decay. In some cases the teeth had been filed to such a degree as to represent teeth of Ashanti savages, but in almost every instance there had been left at the neck of the tooth a natural wall of enamel so that the teeth could by no means come together. The teeth remained as a general rule entirely free from decay. When he first became acquainted with that rather extraordinary method of practice he talked over the question with the eminent Dr. Abbot of Berlin, who bore testimony to the preservative character of the treatment by saying that if he were condemned for his sins to be confined to but one instrument for the purpose of treating decayed teeth he should choose a file, and should use it as the Russian dentists used it. At that time in Russia the process of filling teeth was practically unknown. The second point he wished to make, in complimenting Dr. Kirk upon his very instructive address, was that there was one expression which filled him with delight because it was so eminently characteristic of what he might call the common sense of American instruction in dentistry as well as in other matters: the education of the reasoning power of the student. It seemed to him that, through all the various systems of education with which he was familiar, in America great weight was laid upon that very practical aspect, the education of the reasoning power of the student. If American dentists had anything for which to be extremely thankful to their instructors it was the fact that weight had been always laid upon that education of the faculties.

Dr. Michaels:

Said that with regard to the ancient systems of work he could remember the filing of the teeth that Dr. Jenkins had remarked upon fifty-eight years ago. He had seen a great amount of such work and he had observed the upper edge that was left on to prevent the teeth coming together, but the teeth did not articulate. In relation to the general action of decay he was of opinion that dentists were all on the wrong track. He was quite of the opinion that teeth were decaying not only from neglect and so forth but from the action of the saliva. For a long time he had been bringing the matter before the notice of the world and he was hoping one day or other it would be recognized that the saliva itself was the prominent factor. There was always a percentage of teeth that were sure to decay. From the studies he had been able to show Dr. Kirk since he had been in Paris he hoped the Doctor would soon be able to present a new aspect of the question.

Dr. C. F. Bödecker (Berlin):

Said that Dr. Kirk had certainly read a wonderful paper and one for which the Society was deeply indebted to him. With regard to the predisposition to caries, it was a common idea now that tooth structure had nothing to do with caries and that the causes were to be looked for in the surroundings, uncleanliness and so forth. That uncleanliness did play a large part in the matter was undoubted, but that the structure of the teeth had also to do with caries in a certain percentage of cases was also undoubted. The profession had given up the idea to a great extent of hard and soft teeth, but he thought a great many practical dentists had encountered them, and was of opinion that a soft tooth, which was more liable to decay, might later on harden and become little liable to decay. He believed that condition had something to do with the general health of the patient. If the patient fell sick and the constitution was weakened decay was more liable.

Dr. V. de Trey (Basel):

Said eight or ten years ago he started the grinding of deciduous teeth and he had such beautiful results that he still performed the operation in his every day practice. He simply cut between the molars just to uncover the parts that were in general subject to decay in children. When the first molar appeared he took his wheel and slightly ground the distal part of the deciduous molar in order to uncover the mesial part of the first permanent molar and he had had very good results, feeling sure that he postponed decay on the mesial part of the molar for several years. Of course it was necessary to be very careful to see that the teeth did not move and that there was enough substance left to prevent the teeth coming together.

Dr. George Northcroft (London):

Could not let Dr. de Trey's remarks go by without some protest from the orthodontic point of view. He thought it would be a very false statement to put in the Transactions without some protest being raised against such treatment, and he could not agree with it at all, and he thought if Dr. de Trey followed up the cases that he had treated in that way he would find he had a good many failures to his record.

Dr. C. Rathbun (London):

Asked some of the older members why nothing had been said about Arthurism in the discussion. The late Professor Arthur in the sixties, if he remembered rightly, advocated a system of so cutting away the lingual aspect of the teeth in decay as to prevent recurrence; he believed he practiced so called Arthurism to the extent that if a tooth was so decayed that he could not cut it away sufficiently to prevent decay he referred it to a brother dentist. At any rate he practiced fairly thoroughly—it might be too thoroughly—a system of so cutting away the inner wall of the tooth as to allow of the free action of the saliva and the tongue to prevent the recurrence of decay.

Dr. G. C. Daboll (Paris):

Said that when a man with a long experience saw fillings come back to him he had put in thirty or forty years ago, and found the fillings he then put in to be intact, he had a little idea that he had perhaps struck the right treatment of the teeth in the preparation of the cavities. He had had only one idea from his very earliest days, namely, that in the preparation of a cavity for filling the extension of that cavity should be simply to the point where the healthy solid bone was reached in order that there should be no portion left which was defective. Then if one possessed the requisite skill for filling that tooth with gold or amalgam or any other durable substance one could be pretty sure to protect that tooth for a good many years and prevent decay. With reference to Dr. Arthur, he remembered that episode in the history of dentistry and amongst other things he remembered that Dr. Arthur claimed that gutta-percha was the best material for the filling of teeth. He also claimed that the teeth could be filled with gutta-percha to exclude the entrance of moisture between the filling and the teeth. Some members of the Society might recollect that many years ago in Paris he made a few experiments with amalgam and gold and gutta-percha and amongst other things with Solila gold. He filled a number of cavities, preparing them in such a manner that they had the same conditions they would have in the mouth. He placed them in plaster and filled the proximal cavities with a matrix and filled one with amalgam and one with gold and one with gutta-percha to see if it were possible to make a filling which would resist the entrance of moisture. He also filled a cavity entirely with Solila gold, which was supposed at that time not to be practicable for filling a tooth with certainty. The teeth were all removed from the plaster and put into a carmine solution in alcohol and allowed to remain three months. At the end of that time the teeth were split open and the only one that showed any sign of weakness was the amalgam filling. The Solila filling was perfect, the gold filling was perfect, and the gutta-percha was absolutely free from any stain. It was, as Dr. Kirk said, a question of judgment and early education, and then, of course, of manipulative ability. A man had to have the ability to manipulate the materials or he was going to fail. He might know how to prepare the cavity most perfectly and might get beyond any area of defective tooth substance, and yet if he could not put the gold into the cavity so that it was absolutely tight and excluding moisture he was sure to fail. He claimed that in a dental college the demonstrator was the most important man. He had to show the student the manner in which a material should be manipulated and that was the only way the student could be taught. There was a great difference in students. One man had a natural ability in manipulating and handling material and another had not. Speaking of the Solila gold led him to the remark that in filling teeth with gold he never made any undercuts. The cavity was simple in form, and if a man knew how to manipulate Solila gold he would make a foundation for the introduction of the foil so that it never moved from its base. He considered Solila gold to be most valuable.

Dr. Kirk:

In reply, thanked the members for the very interesting discussion they had given the paper and particularly as to the light they had thrown upon the danger of generalizing and acting upon generalizations based upon insufficient data. There was a very excellent illustration of that in the condition brought out by Dr. de Trey, in which he advocated the cutting away of the proximal surfaces of the deciduous teeth and especially of the distal proximal surface of the second deciduous molar with the view to protecting against or anticipating decay in the mesial surface of the first permanent molar. He conceded Dr. de Trey all that; he had not the slightest doubt that it would do just that thing. Therefore Dr. de Trey said it was good. But immediately Dr. Northcroft said he had had a concern in the matter as an orthodontist, and if such a thing was done to the teeth a condition would be produced which he would have to take care of afterwards, that it might stop decay but it might create a dental irregularity; and he himself agreed with Dr. Northcroft most decidedly in that matter. Therefore that was an illustration of the very thing he was talking of. Dr. de Trey in his generalization did not include what might happen from the orthodontic standpoint, and then came the orthodontic brother and raised a proper protest. That illustrated exactly the thing he had in mind when he spoke about running away with the formula, "extension for prevention," without considering all the things it meant. One member had spoken of hard teeth and soft teeth and of the belief of practitioners that hard teeth, decayed less than soft teeth; and another member spoke of the relationship of uncleanliness to tooth decay. He believed the investigations of Miller, Black, and Williams had demonstrated that caries was not essentially a filth disease; i. e., there were mouths that so far as ordinary filth was concerned were mouths virgin to a toothbrush and yet caries did not exist there, while mouths were seen kept with the most scrupulous care, a most perfect dental toilet, with prophylaxis brought to bear, and yet there was recurrence of decay. Teeth of the softest character would not decay in an environment which did not set up the conditions necessary to produce decay, and the densest teeth would decay in such an environment. The whole spirit of his paper was a word of caution only that when points of illumination came up in the dental darkness, when somebody brought a rushlight into the darkness of ignorance and one began to see one's environment, one should not grab that light and rush away with the idea that it was the opening sunrise of absolute truth. He did not wish to be misunderstood when he criticized the formula "extension for prevention." It took all the experience of previous generations to reach a point when the brilliant mind in Chicago should give utterance to that phrase, but he did not think anybody would agree that the limit had been reached when that had been said. What he had endeavored to point out was that it was unsafe to stop at that point, that there was more to be known about the causes of tooth decay and the conditions that produced it. Personally he believed that in that very city of Paris there was one who was preparing to throw a new light on the subject by the study of the composition of the oral fluids that made the development of the caries producing organism possible in certain conditions and impossible under other conditions. The point in his paper was that, having reached a certain place where it was possible to write a formula, in the education of the student his brain should not be fastened down to that formula and compelled to develop as the Chinese woman's foot developed, in a bound up shoe. He advocated educating the student to think and developing the ability to think along original lines without being hampered by a rule. Give him the rule as an aid but not as a limitation.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

A CHANGE OF SENTIMENT.

Within the memory of men still young it was almost impossible to interest public officials such as school boards or superintendents of charitable institutions in the care of the teeth of their wards. In the city of Chicago a few years ago a committee appointed by the Odontographic Society to look into the condition of the teeth of the children of our public schools was met with a rebuff at the hands of the school board of that time and permission to make an examination was refused. In those days this was a common obstacle to any attempt made by the profession to better the oral condition of the rising generation. The moment any movement of this character was started the impression went abroad that there was some selfish motive behind it and it was cried down.

Now all this has changed. School boards and other officials are welcoming with open arms any effort made by dentists for the amelioration of the ills to which children are subjected through neglected teeth. Movements are on foot in various cities to improve the condition of the teeth of school children, and provision is being made to care for those whose parents are too poor to pay for such service. A word of caution was voiced by Dr. L. J. Mitchell of London, England, at the recent meeting of the Chicago-Odontographic Society, where this subject was under discussion, to the effect that too much indiscriminate charity in this respect tended to the encouragement of pauperism. This is true and the work of philanthropy must be guarded carefully not to develop abuses of this character. And yet, now that the authorities are welcoming the services of the dentist, we must see to it that the children are at least kept from suffering as much as it is in the power of the profession to do so.

The condition of affairs in some of our public institutions is appalling, and should no longer be allowed to exist. The superintendents of these places are recognizing this as never before, and in at least one institution in Illinois there is at present an opening for a dentist where he can have his board and room and a small salary to care for the dental needs of the children.

There seems to be a general awakening all along the line regarding the importance of caring for the teeth, and the dental profession must seize the opportunity and accept the responsibility thus thrown in its way. It is the only means by which we may prove to the world that we are composed of a really beneficent and philanthropic profession.

EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 2.)

My Dear Boy:

I said nothing to you in my first letter about your educational equipment for the study of dentistry. I trust that you have had a little Latin, much English and rhetoric, and that you know how to spell at least most of the words of your native language. I also hope you know what a millimeter is. Few young men entering on the study of dentistry are sufficiently familiar with physics to know the significance of a millimeter in dental practice, or to understand as they should the relation of cause and effect in mechanical procedures. If you have had some chemistry it will do you no harm, and it would be the proper thing for you to be ashamed of yourself if you lack a reasonable knowledge of the geography of the world and your own country in particular. I hope some good, benevolent Samaritan has taken you by the nape of the neck and landed you on your feet if he ever caught you sitting while a lady was standing, and that some husky young chap has thrashed the daylights out of you if you were ever heard saying a silly or slighting thing about a woman. Manhood is an essential to success in the study of any profession, more particularly one of the nature of dentistry. I do not want you to be a namby-pamby, sissie sort of a chap, but I do want you to cultivate the higher, and cleaner, and better things of life. I hope you have whittled a stick and cut your fingers a few times, if afterward you have succeeded in whittling without cutting your fingers. In the practice of dentistry you will be dealing with keen edged tools, and it is a good thing to know in advance that sharp steel is harder than human flesh and that the flesh usually gets the worst of it when they come together. I said "sharp steel." Later I am going to tell you something about sharp instruments—something you must know, but if I told you now I am afraid you would forget. I have noticed that boys studying dentistry are much inclined to forget about this matter of sharp instruments.

I hope that you have been taught the value of a dollar and that you have learned the lesson of economy. Aside from the fact that wastefulness is a crime against society, there is a particular reason in your case why you should keep a keen eye on the outgoes. In professional life the income is not so great that it leaves much of a margin to play upon, and the materials you will use are so expensive that to waste them unnecessarily is a species of the most wanton extravagance.

It pains me to tell you that the example set before you in a dental college is almost wholly a bad one in this particular. I know of no college where there is not a lamentable waste of material in the clinical department, and this is entirely aside from the more or less necessary spoiling of material by students in their early attempts to use it. It is a wilful waste of things through sheer wantonness, based on the fact that the loss falls on some one else and need therefore not be considered. It is easy for some individuals of a certain nature to see property destroyed when they are not the losers, and even with young men of the best impulses it is a bad example for them to see continual waste in their daily work. They cannot be expected to realize the value of the material that is being destroyed, and they quite naturally fall into the habit of using materials as recklessly as they see others using them. This habit once formed in college is more than likely to follow them after graduation, and, without realizing what they are doing, they squander much of their income in needless extravagance. This waste in college relates not only to materials for fillings and prosthetic work, but to everything connected with the college equipment. Boys will be boys, of course, and sometimes they will become boisterous and break some furniture. This, when done without premeditation and under the excitement of a class rush or other frolic, does not come under the head of the thing I am talking about. But, for instance, let us step into any technic or prosthetic laboratory and see the needless waste of gas. Usually most of the burners are going full blast and less than one-quarter of them are in use. The boys simply get in the habit of lighting the gas to do some little piece of work, and then, because it is not in any way adding to their expense, they neglect to turn it off when they are through. And the harmful part of it is that these same boys will let the gas burn needlessly when they get out into practice for themselves. Habits are tenacious and I am tempted at this point, under cover of giving some advice to you, to take to task somewhat severely the management of most of our colleges in this important particular. Colleges owe it to their students to instil into them during the formative period of their lives those habits of economy which shall stand them in good hand throughout their lives, and no college is doing its duty by its students when it permits them to waste anything needlessly during their college life. Demonstrators should be instructed to keep close watch over this pernicious practice, and the principle should be constantly impressed upon the students that waste is criminal, whether it falls upon an institution or an individual.

I have briefly mentioned some of the traits—not all—which I hope you possess preparatory to entering college, but if you are deficient in some of these requirements I am not going to despair of you. Some of our brightest minds have come into the profession without the equipment I have outlined, and yet you may be assured that they had other qualifications which made up for the deficiency. I do not wish to discourage you when I say that it requires a wider order of talent to successfully practice dentistry in its highest possibilities than to follow almost any other pursuit, and yet this of itself should merely serve as an incentive for you to try to attain to the highest, which, I am sure, you can readily do because of the fact that the qualifications for success in dentistry are largely those which may be cultivated. It requires no heaven-born genius to equip himself so that he may acceptably and skilfully care for the teeth of the people committed to his care, and yet I must not close this feature of the subject without mentioning certain characteristics which I deem of the highest importance and which I have not yet referred to. You cannot be bright in spots and succeed; you cannot apply yourself in spasms and rest on your oars the remainder of the time. The time which you waste will sweep over the time you utilize and choke out its good effects like weeds growing in a garden. In other words, you must be a plodder. No matter what your native ability, you cannot attain to success in dentistry without "keeping everlastingly at it." This, of course, does not refer to the necessity of taking vacations at intervals in later years when you are in full practice, but to the intermittent and spasmodic efforts by which some men dissipate their energies without accomplishing effective results.

I have left till the last what I consider the most important requisite in a young man studying a profession. You may have all of the things I have mentioned in this letter, but they will be as sounding brass or tinkling cymbal if you lack the one essential which I shall summarize as moral fiber. Remember the obligation which you are to assume when you elect to become a professional man, and keep this obligation ever before you in its broadest and best sense. Unless you do this you will fail as surely as the effect follows a cause. Do not be deceived by the fact that you see men who are apparently high up in their profession leading questionable lives. I have lived longer than you and have observed more widely, and I say to you in all sincerity that I have never yet seen a single instance where a man who was bad morally ever succeeded permanently at dentistry. Sooner or later the inevitable happens and down they go with a crash, and the higher up they have been the harder the fall and the more disastrous and pathetic the result. No, my dear boy, if you have immoral tendencies which you have not the will to overcome, in the name of all that is consistent and decent, stop where you are now and do not attempt to enter a profession which is so exacting in this regard as is dentistry. But, even if you have made missteps and you now wish to do right and attain something worth while in the world, remember you will find the helping hand of encouragement held out to you by all good men and true, and by no one more cordially than by

Your friend,

THE PRECEPTOR.

BOOK REVIEWS.

HASKELL'S MANUAL OF PLATE WORK, *or Hand-book for the Dental Laboratory.* BY LOOMIS P. HASKELL, D. D. S. Revised Edition. Published by the Author, Chicago, 1910.

This little book of sixty-three pages is the boiled-down essence of sixty-five years' experience in the exclusive practice of prosthetic dentistry. No one in our profession has had the unique experience that has Dr. Haskell. His name has stood for more than half a century as one of the leading lights in that department of dentistry which has claimed his undivided attention, and now that he has reduced his ideas to print in this small volume, it cannot fail to command the respect of the entire profession. In all his writings Dr. Haskell has been noted for his terse method of stating things, and in this book he has given his ideas in the briefest possible manner. To the practitioner as well as to the student there are many useful ideas evolved from the years of experience of the author, and no man practicing or studying dentistry can read the book without being benefited thereby. A most excellent picture of Dr. Haskell forms the frontispiece of the volume, and this alone is worth the price of the book to the many friends in the profession who have learned to love and reverence the author.

ANATOMY, DESCRIPTIVE AND APPLIED. By HENRY GRAY, F.R.S., late lecturer on Anatomy at St. George's Hospital, London. New (18th) edition, thoroughly revised, by Edward Anthony Spitzka, M.D., Professor of Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1,496 pages, with 1,208 large and elaborate engravings. Price, with illustrations in colors, cloth, $6.00 net; leather, $7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1910.

It would seem wholly unnecessary to do more for a discriminating profession than merely to announce the appearance of a new edition of Gray's Anatomy. It has so long been the standard—for more than half a century—that the only comment to be made is a reference to the improvements in the present edition. Every line has apparently been scrutinized with the idea of improving it if possible, and the illustrations have been in some instances changed for better ones, and there have also been some additional illustrations made. The colored work in the engravings has been made a prominent feature of the work, and it would seem as if everything had been done by the editor and publishers to make the book as perfect as possible. We can most cordially commend it.

A TEXT-BOOK OF OPERATIVE DENTISTRY. Edited by Dr. C. N. Johnson. Second Edition. Published by P. Blakiston's Son & Co., Philadelphia.

The appearance of the second edition of this splendid work within so short a time after the publication of the first edition is an acknowledgment of the need for such a book and an evidence of the manner in which the work of the editor and of the several contributors has been accepted, recognized and appreciated by the profession.

Throughout the whole volume of 760 pages the work is so thoroughly up to date and the illustrations so abundant and so beautifully executed as to insure its permanency as a text-book upon this subject, and to justify, if not command, a conspicuous place in the library of every reading, thinking, progressive practitioner.

The systematic arrangement and sequential order in which the subject is presented reflects the genius of the editor, and a further evidence of the same attribute is manifest by the selection of his contributors, all of whom, without exception, have aided in the production of a work of which they may well feel proud.

Notable among these efforts are the splendid chapters on the Anatomy and Histology of the Human Teeth, by Dr. Charles R. Turner. In this work the author has unquestionably given us the most complete and scientific work of the kind yet produced.

The several chapters by Dr. J. P. Buckley are also of a high character, and of such scientific and practical value as to reflect great credit upon this author, who, by his work in this field, has made a name for himself which must endure.

The chapter on "Pyorrhea" by Dr. John D. Patterson is also a conspicuous contribution because of the most conservative and practical manner in which this much discussed subject has been treated.

The chapter on "Gold Inlays" by Dr. J. E. Nyman is also presented in a highly practical and satisfactory manner.

The chapter on Orthodontia by Dr. H. A. Pullen is so beautifully presented as to cause us to wonder why so prominent an author should be willing to have such a splendid work appear only as a portion of a text-book on Operative Dentistry when it would have made a separate volume of sufficient size, importance and character as to command a high if not a leading place among the exclusive text-books upon this particular specialty.

The contributions of the editor himself, as might be expected, are brilliant, and much might be said of each and every other contributor in the whole list of some seventeen.

If the lifetime of one's name is to be governed by his work, the names of all of these contributors will live long, for such work must necessarily be a standard for many years to come.

As a whole, this edition is a masterpiece in the art of bookmaking, and a credit to the profession of dentistry. H. J. G.

CORRESPONDENCE.

October 7, 1910.

To the Editor of the DENTAL JOURNAL:

Dear Mr. Editor—The following letter speaks for itself:

I will be pleased to hear from any qualified young man who would like a year's hospital experience.

The opportunity for a year's practice at all kinds of dental operations, save gold filling and porcelain work, is very unusual.

Besides the usual dental operations, Belleview Dental Department cares for fractures of the jaw, tumors of the mouth, etc., thus giving a young man an opportunity to obtain experience along lines that cover the whole field of oral surgery. Applicants must be qualified or able to qualify to practice dentistry in New York State.

Very truly,

HERBERT L. WHEELER,

12 West Forty-sixth street.

Dr. Herbert L. Wheeler,
12 West Forty-sixth Street, New York City.

DEAR SIR: The trustees have, upon the recommendation of the Medical Board, resolved to appoint a dental interne at Belleview Hospital, as suggested by you. Will you kindly recommend a competent dentist to fill the place, and advise us what steps are necessary on our part to get the place established?

Very truly yours,

L. K. PAULDING,
Secretary Board of Trustees.

OBITUARY.

Dr. Jos. P. Gray.

Died: Dr. J. P. Gray of Nashville, Tenn., on September 30, 1910. Dr. Gray's death was due to a stroke of paralysis. He was born in Windsor, Mo., in 1855, and began the study of dentistry at 18. He practiced in Clinton, Mo., Sedalia, Mo., and finally moved to Nashville, where he had been identified with all the progressive movements connected with the profession up to the time of his death. He was formerly dean of the Dental Department of the University of Tennessee, and after that till his death was secretary of the Vanderbilt University, Department of Dentistry.

Dr. Gray has held some of the highest offices in the gift of his profession, and was widely known from one end of the country to the other. In addition to his ability as an organizer, an educator and a practitioner, he was one of the most genial of companions, and he will be greatly missed not only by his immediate associates of the South, but by his many friends throughout the entire country.

PRACTICAL HINTS DEPARTMENT.

Edited by J. E. Schaefer, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, The Dental Review, 55 State street, Chicago, Ill.]

Care of the Hands:—To cleanse the hands after doing plate or laboratory work, first wash the hands with warm water and soap, and while still wet, take a cotton roll saturated with ether and thoroughly wash them. This will remove all the grease or oil substance, but leaves a bad odor, which may be overcome by then washing the hands with some scented soap.—Ralston I. Lewis, Chicago.

To Prevent Distortion of Wax Bite for Bridgework:—Pour the occluding side of the bite at the same time and with the same mix of plaster as the plaster impression is poured. When both are set sufficiently, mount on occluding frame as usual. The hard plaster in the bite will prevent any distortion when same is pressed to position on the bridge abutments. I have found this of material help in preventing faulty occlusion in the construction of bridges.—D. D. Drake, Clarinda, Ia.

The Proper Application of the Saliva Ejector:—It is entirely unnecessary to subject a patient to a prolonged and tedious sitting with the saliva-ejector under the rubber-dam and cramped upon the lip. After adjusting the dam, cut an opening with a curved crown-shears, remote from the field of operation, and insert ejector through this opening.

You will be surprised at the comfort you have rendered the patient, and, above all, it overcomes the closing of the apertures in the injector—a very frequent and annoying affair to both patient and operator. Do this with your next case and watch the change.—Bernard Bramm, Chicago.

Mouth Washes:—I have in my office at the present time samples of several different preparations for which the following claims are made: "Corrects inflamed conditions of the mucous membrane and spungy gums, prevents decay of the teeth, cures pyorrhea." In case of pyorrhea, for instance, any mouth wash alone (without the removal of the deposits) will do as much good as an equal amount of water. But the manufacturer comes along with his samples and has the dentist hand one to each patient. The patient now has learned where to buy more and often does not return to the dentist again until he is ready for a plate. No dentist should prescribe any mouth wash, dental cream or tooth powder that has "a cure" attached to it, because there is no such preparation and it may mislead the patient.—W. A. Buscho, Chicago.

Dislocation of the Inferior Maxilla—This is quite possible in an everyday practice, and while very simple and usually easily remedied, it is often extremely terrifying to the patient, who is apt to associate the condition with tetanus. It may occur from inherent weakness of the muscles where they are kept on extreme tension for prolonged filling operations or in the taking of impressions. It is simple displacement of the condyloid process downward and forward until in complete dislocation, it rests in front of the articular eminence.

In case the dislocation is bilateral it is advisable to reduce each side separately and this is usually readily accomplished by means of exerting strong force on the posterior teeth of the mandible, carrying it downward far enough to allow the process to pass the articular eminence and then backward until it drops to place.

If there is any "Doubting Thomas" who questions the amount of force usually attributed to the muscles of mastication, let him attempt this operation without amply protecting his hands with a towel or napkin, but unless he has more thumbs than he needs, their use is earnestly recommended as the mandible drops into place with no inconsiderable force. In case the muscles are unusually tense, a cork or piece of wood may be used as a fulcrum by placing it between the molars on the affected side and then directing the force towards raising the anterior part of the maxilla. In extreme cases the use of a general anesthetic is required to induce relaxation of the muscles. After reduction a bandage should be worn for some hours.—George O. Webster, Berlin.

A Cast Backing for a Porcelain Faced Crown:—With root prepared a band is made in the usual manner and facing ground and fitted as for Richmond crown. The wire to be used for dowel is hammered out flat on one end and notched to correspond with facing pins so that the flattened end will pass in between them and lay flat against the facing. The other end of dowel is adjusted to canal so that facing with pins resting in notches of dowel will fit snugly against band labially and line up with other teeth. The facing is now removed from the mouth and a mass of softened wax is forced around dowel base and back of facing and with base end of wax again softened over flame, force to place on root. The band which was left on root should now be removed with dowel facing and wax all intact and secured to place by running a hot instrument around the outer edge, melting the wax to it. Remove excess wax, warm up slightly and put back onto root for final adjustment, after which carefully remove from the mouth and with a piece of sticky wax heated and attached to facing pull it away from wax, place carbon points in pin holes, invest and cast. The facing may be secured to the backing by one of two means. If backing is thick enough to cover the full length of pin the facing can be securely attached in the following manner: With a twist drill two or three sizes larger than pin holes, drill out carbon points, thus making holes slightly larger than pins to accommodate a sort of head that is made on end of pins by pinching with pliers. The holes are now carefully filled with cement and with entire back of facing covered with cement it is pressed to place.

In case of thin backing the holes should extend through to the lingual surface and slightly countersunk. Pins are cut off flush with surface of backing and facing is secured to backing by cementation and riveting, which should be done before the cement crystallizes by imbedding facing in a softened mass of modeling compound with backing up, and with small jeweler's hammer rivet ends of pins and finish flush with lingual surface of backing. This method offers an absolutely reliable means of attaching facing to thinnest of backing, is easily accomplished, and in case of breakage is repaired with equal facility.—F. E. Roach, Chicago.

MEMORANDA.

WABASH RIVER SECTION DENTAL SOCIETY.

The Wabash River Section Dental Society held their annual meeting at Palestine, October 10 and 11, 1910. Olney was selected as meeting place in 1911. Following officers were elected: President, F. B. Olwin, Robinson; vice president, R. Y. Morris, Olney; secretary, T. H. Daly, Mt. Carmel.

IOWA BOARD OF DENTAL EXAMINERS.

The Iowa State Board will hold a meeting for the examination of candidates for license to practice dentistry in Iowa, beginning December 5, 1910, at 9:00 a. m., in Des Moines. For blanks and other information write the secretary, E. D. Brower, Le Mars, Iowa.

SEVENTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

The annual union meeting of the Seventh and Eighth District Dental Societies of the State of New York will be held at Rochester in the Hotel Seneca on November 10, 11, and 12, 1910. An especially good program has been prepared. All ethical dentists are invited to attend these meetings. George C. Lowe, Recording Secretary.

THE G. V. BLACK DENTAL CLUB CLINIC.

The G. V. Black Dental Club of St. Paul will hold a Mid-winter Clinic in February, 1911. It is our intention to make this meeting the most interesting and profitable of all which we have held. A cordial invitation is extended to the members of the profession to attend and assist us in making this meeting the best that has ever been held in the Northwest. Dates and program will be published later. For further information address, R. B. Wilson, secretary, American National Bank building, St. Paul, Minn.

OHIO STATE DENTAL SOCIETY.

The forty-fifth annual meeting of the Ohio State Dental Society will be held in Columbus on December 6, 7, and 8, 1910. The Great Southern Hotel will be headquarters, as heretofore, but additional space will be available giving ample room for the meetings and the clinics which of late years have been so much overcrowded. Come and hear a Symposium on the Physiology and Pathology of the Sockets and Gums by men of wide reputation. Dr. M. H. Fletcher, the president, on "Reparative Powers of the Cementum." "Physiology and Anatomy of the Gums and Sockets," by an essayest yet to be selected. Dr. T. B. Hartzell, of Minneapolis, on "Infection and Pathology of the Gums and Sockets." Dr. N. S. Hoff, of Ann Arbor, on "Instrumentation and Medication of Gums and Sockets." Dr. Joseph Head, of Philadelphia, on "Prophylaxis of the Gums and Sockets." Dr. S. L. McCurdy, of Pittsburgh, on "Extended Diseases of the Sockets and Bones; Surgical Treatment." These papers, with the clinics along the same line, will afford an invaluable course of instruction in the cause and treatment of these diseases. The numerous other clinics, covering the entire range of dental practice, will contain many features of value to every one. Mark the dates on your appointment book now and come to another of those big meetings of the Ohio State Dental Society. F. R. Chapman, Secretary.

RECENT PATENTS OF INTEREST TO DENTISTS.

959191. Dental brush, James H. Abbott, Philadelphia, Pa.

959416. Dental brush, James H. Abbott, Philadelphia, Pa.

959352. Hydraulic motor for dental engines, Oscar L. Kellett, West Plains, Mo.

959358. Replaceable tooth, Francis La Chapelle, San Francisco, Cal.

959365. Dental forceps, Ernest C. Lombard, New York, N. Y.

959395. Tooth-crown, Pauline Schaefer, Oakland, Cal.

959684. Dental mouth prop, Wm. Adelman, Hoboken, N. J.

959534. Sanitary dental bracket and tray, Gustav Holtz, Gouldsboro, Pa.

959608. Dental chair, Frank Ritter, Rochester, N. Y.

960236. Dentist's cotton-holder and waste receptacle, Bert G. Simmons, New Brunswick, N. J.

959641. Switchboard for dental, medical, or surgical purposes, David Stern, Cincinnati, Ohio.

961287. Treating ulcerated teeth, Frank M. Crane, South Orange, N. J.

961262. Dental advertising device, Max R. Slough, Covina, Cal.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall building, Washington, D. C.

THE

DENTAL REVIEW.

Vol. XXIV. CHICAGO, DECEMBER, 1910. No. 12

PRESIDENT'S ADDRESS.*

BY HARVEY N. JACKSON, D. D. S., MILWAUKEE.

To the Members of the Wisconsin State Dental Society:—Greeting.

The duty devolving upon me as your President, to deliver an address, furnishes the opportunity to express my great appreciation of the honor and trust imposed upon me. It is a great pleasure to welcome you to this, our 40th annual meeting, because I am sure you will take advantage of this opportunity to become better acquainted with your brothers in the profession, better acquainted not only with the work of their hands, but more than all else, with the ideals they are dreaming of for the betterment of our Society, and the uplifting of our glorious profession.

I am also happy to report to you that the results thus far, have more than justified your action at La Crosse two years ago, in reorganizing this society. Two years is a short period of time, and while we may not have accomplished all that was possible, we have nevertheless made a beginning, and are going in the right direction. Two years from now, should see our membership doubled. The right kind of effort made in the various districts and counties will easily make this possible. In his president's address last year Dr. W. H. Mueller called attention to the need of a bulletin or news letter by which our members might keep posted on what this society is doing. This, of course, should include component societies. I am greatly impressed with the wisdom of this suggestion and believe that an effort should be made this year to try this plan.

That our professional progress has been almost phenomenal during the last ten or twelve years no one will attempt to deny. The solving of many problems, however, has emphasized how much there is yet to be done, and the need for persistent application, and concentrated effort, by the individual, as well as by societies, is more keenly appreciated by the professional mind than ever before. All over this sion, and the good work which is being done by dental societies, for broad land of ours there has been a great awakening in our profes- the benefit of the human race, can hardly be overestimated.

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*Read before the Wisconsin State Dental Society, July, 1910.

The Wisconsin State Dental Society should do its full share of advance work. It should be the engine and not the coach in the train of education, professional and public. Let us not be content, my friends, to rest upon the laurels of past achievements, but rather to get right into the thick of the fight and assist as leaders in the work which makes for greater efficiency and a more sturdy, healthful citizenship. A special effort was made by this Society last year, along the line of special work, through the effort of our present vice-president, Dr. Chas. Southwell. The result was far-reaching, and without doubt made many dentists more careful in the introduction as well as in the condensation of gold foil fillings. With a similar idea in mind, I will mention a few subjects, any one or two of which will furnish ample opportunity for concentrated effort by this society, during the next twelve months.

The most popular subject upon which dentists generally are directing their attention at the present time, is oral prophylaxis, and the examination of the teeth of school children. This movement has gained much momentum, and may rightly be called a national campaign of education. This subject I would most earnestly recommend to your consideration, and to take such action as may seem best to you. In this connection it may not be amiss to again remind you that the study of dental caries, causation and prevention still offers an inviting field for research. There are young men in this society who should take hold of this work, and also keep us well informed on the net results elsewhere along this line of endeavor.

More care in scientific therapeutic practice is another subject upon which we could well afford to direct a special and profitable line of study, and last, but not least, a study of the anatomical arrangement of artificial teeth and the making of artificial dentures. Progress along this line has not been satisfactory. This is putting it mildly. There are those who go much farther and declare that we have been going backward instead of forward in this branch of our work. It is quite certain that gum section work is rapidly becoming a lost art. The writer of this paper does not hold or believe that gum section dentures are best in all cases. He does believe, however, that in many cases a better and more perfect result would be obtained with gum sections than with plain teeth. Too little care is taken by most of us in the selection of artificial teeth as to color, shade and adaptability to the case in hand. The arrangement and occlusion of the teeth is very often faulty. We seldom see a person of middle age or older with the natural teeth, regularly or evenly set. Yet we make dentures for all, old and young, quite unnaturally perfect. The average dentist goes cheerfully on setting up teeth for these patients, with absolutely no regard for the requirements or the natural effect that may be gained by a little breaking up of the dead regularity. Again, much may be accomplished in natural appearance by breaking up the color a bit. Our manufacturers of artificial teeth should provide sets with the cuspids a shade darker than the incisors, but as we have been compelled to wait about forty years for them to get around to providing us with bi-cuspids and molars in natural forms, and but one manufacturer now making them, it seems well nigh a hopeless task. We can remedy this limitation somewhat by using teeth of different sets, and by the use of the porcelain furnace and the mineral and oil stains, very artistic effects can be produced in this way. There is no excuse for making dentures in one dead color, and, clearly, it is up to the dentist to get more natural effects with artificial dentures.

The most natural and pleasing effect the writer has been able to obtain has been with dentures in which he used the odds and ends of the scrap box.

Again, a very small proportion of dentists show any regard for the compensating curve and the three points of contact in making a so-called full upper and lower set, yet there is no one feature, the careful observance of which has so much to do with the comfort and usefulness of the full denture.

Another point: In waxing up of the case, many dentists make a concavity just back of the incisors, whereas there should be a little convexity. This not only gives added strength to the piece where needed, but furnishes the natural pad or roll against which the tongue continually works in articulating certain sounds. To satisfy yourself on this point, you need only to examine any normal mouth, and to take note of the action of your tongue while speaking.

To me it is a hopeful sign that some of our best writers and thinkers are giving this much neglected branch of our art some attention in our late journals. Now let us go forward in this branch of our work and try to catch up to the standard we have set in other lines. As already stated, we have attained well nigh the highest possibilities in all other branches of our art; let us get out of the rut we have worked in for so many years in this long neglected line of artificial dentures.

Having said this much along technical lines, I will ask you to kindly bear with me for making a reference to the ethical relationship which we should sustain toward each other.

Hamilton Wright Mabie says:

"Every art has its own method of training, its distinctive discipline, its secrets of experience and skill; and mastery depends upon practice of these methods, submission to this discipline, possession of the fruits of this experience and command of this skill.

Between the untrained man and the artist in every department of creative work, there must be an educational process severe and prolonged.

This necessity is imposed on men of genius no less rigorously than on men of talent."

One of the greatest needs in our profession today, in my opinion, is a standing together, shoulder to shoulder, for the betterment of our condition, professionally, socially and financially. We have only to take heed of the example set for us by our more humble brothers in the trades to see the tremendous advantage of co-operation (this touch of the shoulder in the ranks), over the lack of co-operation due to the small and petty jealousies and bickerings we find continually cropping out in our profession. Brothers, this uncharitableness is the greatest bane and blight of our profession today. This doctrine of hate, which some men seem to practice, is fatal to our progress. If we would bring out the best that is in us, if we would get out of our profession the best it affords for a life's devotion to it, we must think together, we must believe together, we must work together, and we must act together. It is my firm conviction that the day that sees every dentist in the State of Wisconsin, and in all states, big-hearted enough and charitable enough and wise enough to see and appreciate the absolutely suicidal effect which this spirit of selfishness and self-aggrandizement has upon his chosen profession and upon him directly as a member of it, that day will be the brightest day that has ever dawned upon the profession of dentistry.

THE DIAGNOSIS OF DEFORMITIES DUE TO IRREGULARITIES OF THE TEETH.*

BY CARL B. CASE, D. D. S., MILWAUKEE.

Mr. President, Gentlemen of the Wisconsin State Dental Society, Ladies and Gentlemen of Ashland: In presenting this subject for your consideration my intention has been not to go into detail concerning the various irregularities and mal-positions of the teeth, but to outline the true method by which the character and extent of all dental deformities may be determined.

The subject is an extremely important one and has a strong bearing upon the professional treatment of our clients, but strangely enough it has been ignored by the entire dental profession.

I can easily understand why an orthodontia practice does not fit in with a general practice. I can easily see why the general practitioner does not, as a rule, care to undertake regulating, realizing, as he must, his limitations in experience and equipment, but I certainly cannot understand why the exponent of general practice should consider himself excused from knowing how to properly diagnose cases of dental deformity.

The one branch of orthodontia which we should all consider ourselves under obligation to our clients to know, is diagnosis. The one thing pertaining to orthodontia which we should feel under obligation to furnish to our client is good, sound advice called forth by observation and a knowledge of diagnosis.

The public is woefully and amazingly ignorant of orthodontia and its possible attainments. The people have comparatively no knowledge that there is such a thing as straightening teeth or that faces which are homely or mis-shapen on account of teeth being irregular or out of their proper location can be materially changed and improved.

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*Read before the Wisconsin State Dental Society, July, 1910.

They have become so accustomed to seeing the dental and facial deformities of their children day after day that they seldom realize that a deformity is there which could be corrected. And this is particularly true of those facial deformities due to mal-posed teeth which are comparatively perfect in their alignment and occlusion.

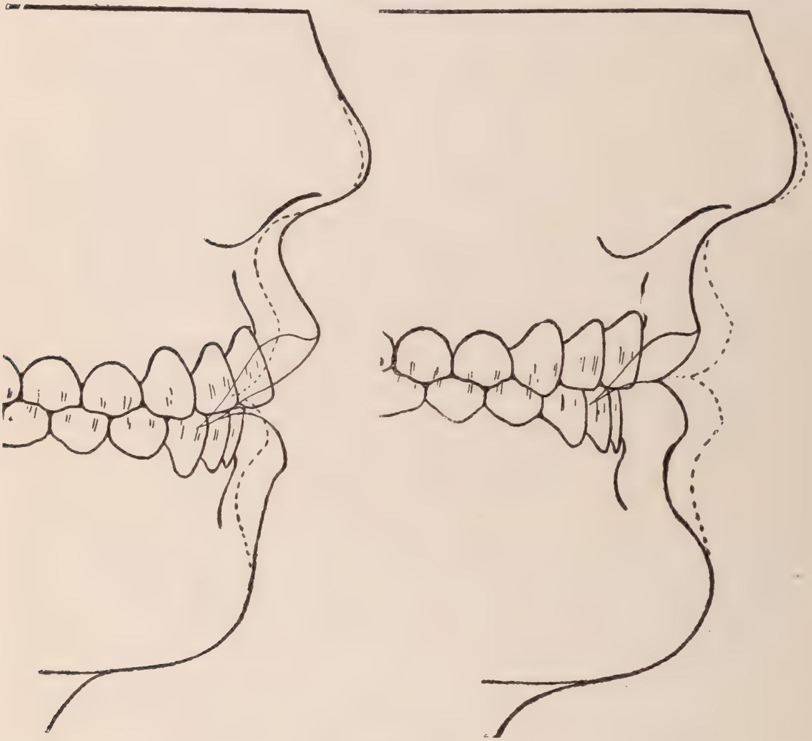

Fig. 1.

How is it possible for the public to acquire this knowledge unless the dentist himself is educated to the necessity and extent of teaching them? How can it be expected that the public should know of the possibilities of moving teeth and improving facial outlines thereby if the dentist does not know of them?

Diagnosis is the groundwork, the foundation upon which dental orthopedia is built. It is the fundamental principle without a definite knowledge of which no case of irregularity of the teeth or inharmony of the facial contours due to malposed teeth can be properly determined or treated.

Too often is the diagnosis made by examination solely of the teeth or teeth models. Too often are the conditions called protusions or retrusions, or contrusions of anterior teeth which require only to be placed in proper relationship, occlusion or alignment, without a thought of the results which must consequently, in a large number of cases, be reflected in the face. Too often are teeth extracted needlessly and harmfully to the detriment of both the patient and successful work, simply because the operator has not exercised good judgment, either from a lack of common sense or of education in this particular branch of dental science. Too often are teeth which

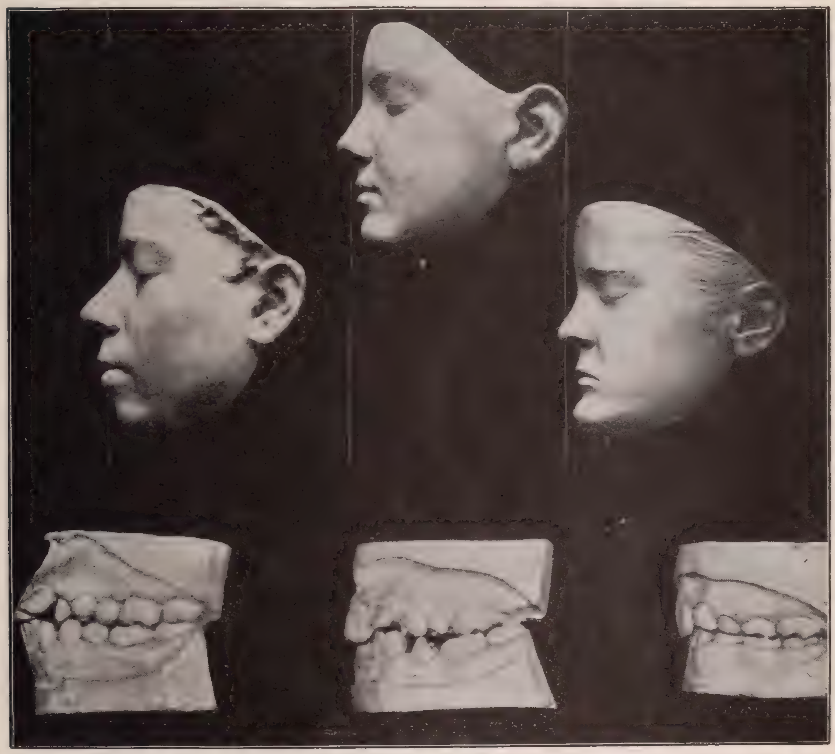

Fig. 2.

should have been extracted, that esthetic and harmonious relationship might be produced, left in the mouth, simply because the operator has been imposed upon by the exploitation of some fancied wonderful discovery which tends to lead him to believe that orthodontia has become greatly simplified, and that extraction is never warranted.

Such methods of practice cannot be too severely criticised and condemned. It is not as if there were two or three methods of procedure to choose from which would give equally desirable results.

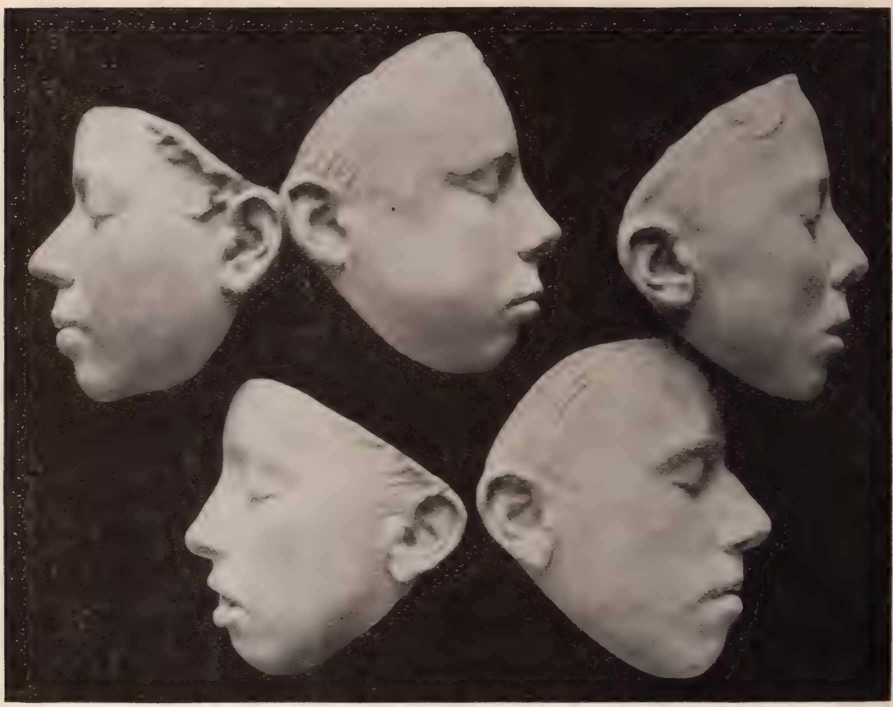

Fig. 3.

There is only one result to be desired—a perfect occlusion with perfect or harmonious facial outlines. And since some of the methods of practice banish completely all consideration of the face and are confined entirely to establishing a good occlusion, indiscriminately maintaining the full complement of teeth, it must be apparent to all sensible people that the results thus obtained are anything but artistic or desirable.

There are two recognized methods of diagnosing dental deformities. The one is a false method and does not lend itself to raising the standard of orthodontia in the slightest degree. It is based entirely upon the occlusion of the teeth, without the slightest consideration of the importance of the facial outlines or contours. Its basic principle is the necessity of preserving at all times the full complement of teeth and establishing normal occlusion, and its basic claim is, that normal occlusion of the teeth will always be accompanied by the normal face.

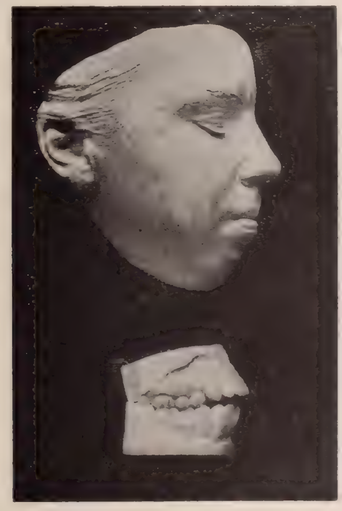

Fig. 4.

Were this absolutely true, then would there be more than sufficient foundation for claiming that the occlusion is the sole factor of diagnosis. But it would be equally sensible to claim that normal occlusion of the teeth would result from pressing the facial outlines and contours into harmony, for it is a poor rule that will not work both ways.

The true diagnosis of dental deformities, and in proving it to be true the foregoing method is necessarily proved to be false, considers not alone the various malpositions of the teeth, their relation to each other in the same arch and to the teeth of the opposing jaw as certain prominent writers of the day would have you believe. It considers, primarily, the facial outlines and contours; the anatomical relation of each segment of the changeable area to each other and to the landmarks of the unchangeable portions of the physiognomy, with a view of determining the character and extent of the deformity as compared with normal facial outlines.

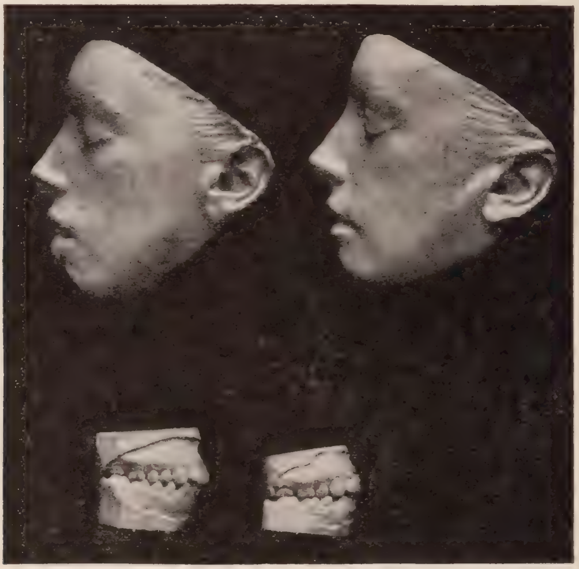

Fig. 5.

Now to consider just what constitutes normal facial outlines. In articles appearing during the last few years, writers have commented upon the egotism of certain men in laying down an outline to illustrate their idea of a normal face, stating that even artists and sculptors are unable to agree. And yet it is to be noticed that the outlines and contours painted or carved by the artists and sculptors in creating their ideals of facial beauty and symmetry, vary but slightly, all having the same general harmonious curves.

Certain it is, however, that these ideals have never depicted the pronounced protrusions or retrusions of the lips as shown in Fig. 1, which are so commonly accompanied by more or less regular teeth and normal occlusion, and which are, unfortunately, on that account, even in these days of higher education in orthodontia, called normal or harmonious by the advocates of the false method of diagnosis, whose creed seems to be—retain all the teeth indiscriminately, establish normal occlusion and the facial outlines will become normal, for normal occlusion is always accompanied by a normal facial outline.

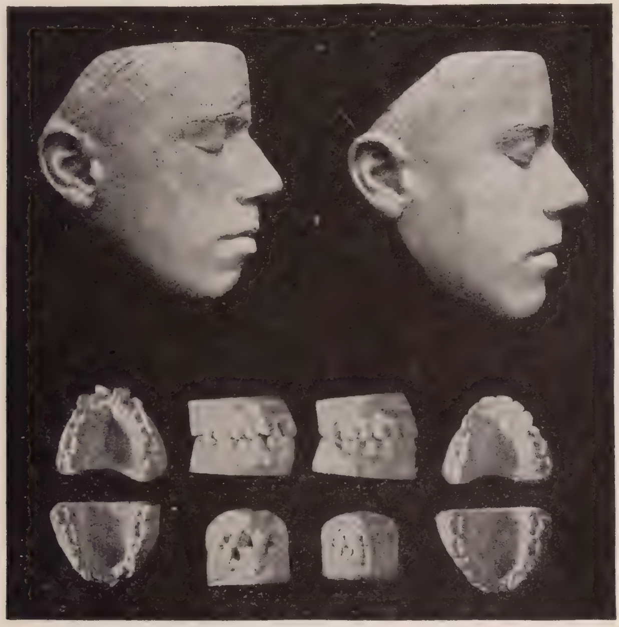

Fig. 6.

The normal face cannot be mathematically determined. We can only rely upon our judgment and good taste of what is harmonius or pleasing to the eye.

There must be some standard to be used in comparison in determinating the protrusions and retrusions and many other dental deformities which are reflected in the face and which are called sometimes one thing and sometimes another, according to our artistic judgment or lack of common sense, if poor taste can be called that.

Notice the two extreme conditions as shown by the diagrammatic outlines in Fig. 1 the full protrusion and retrusion of the teeth of both jaws fully the width of a bicuspid. In both instances the teeth are shown to be in normal occlusion.

It seems almost incredible that any one can be so narrow-minded or so lacking in artistic judgment as to call these two faces normal or harmonious in contour simply because the teeth happen to be in normal occlusion.

Between these two extreme conditions of full protrusion and full retrusion back of the normal or composite face, as shown by the dotted lines, there is a perfect gradation with a gradually increasing number of cases.

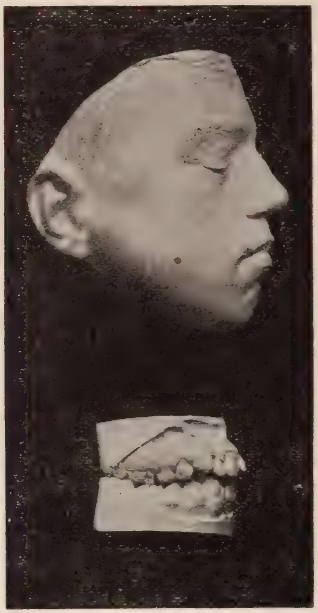

Fig. 7.

Fig. 2 shows three casts of faces which represent the same extreme conditions of protrusion and retrusion and prove that the diagrammatic outlines are not theoretical only. The central picture is a fine example of the intermediate or normal face; the type of face which we have all probably been educated to regard as harmonious in contour.

Notice that the buccal occlusion of the teeth in the two extremes is comparatively normal, while in the composite or normal face the occlusion is very imperfect.

Judging from these three faces alone it seems to be well proven that normal occlusion of the teeth is no more indicative of normal facial outlines than malocclusion indicates that the face must be deformed.

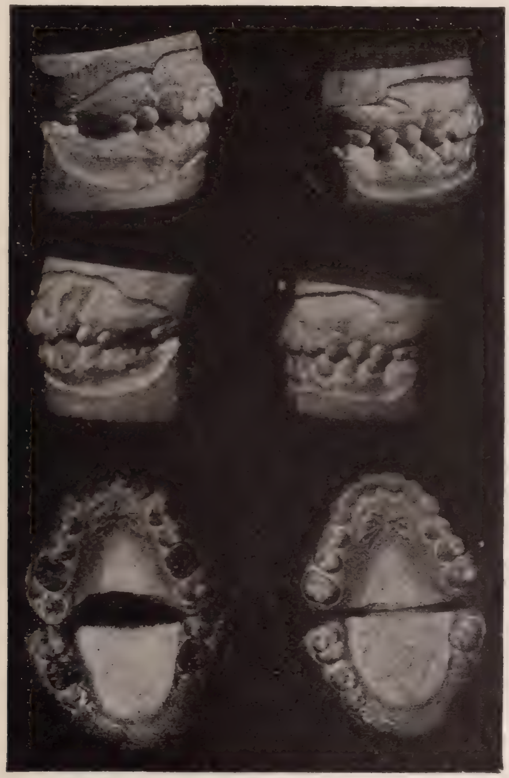

Fig. 8.

It should be remembered that only a small portion of the physiognomy can be inuflenced by tooth movement, that portion overlying and adjacent to the dental arches constituting the dento-facial or changeable area. For the purpose of a more intelligent examination, this area is divided into the four zones of reflected movement—upper apical, upper coronal, lower coronal, and lower apical zones. With every inward or outward movement of each dental zone the changes will be reflected in the corresponding zone of the face, though in a slightly lesser degree.

The balance of the physiognomy comprises the unchangeable area, which is surmounted by prominent landmarks and guides to dianosis—the chin, the bridge of the nose, the forehead and the malar eminences.

Let me quote an excerpt from a chapter on Dento-Facial Diagnosis in "Dental Orthopedia":

"In training the mind to a fuller appreciation of the needs of this department, one cannot do better than study, unobtrusively, the faces met with in the suburban cars and local transits.

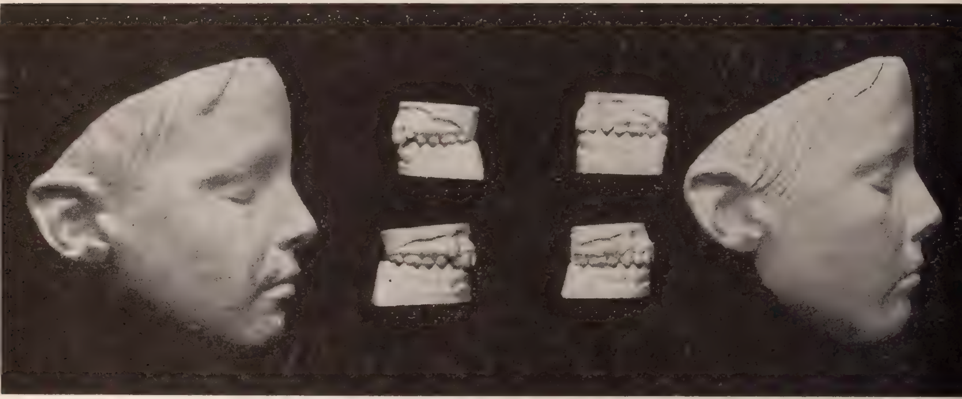

Fig. 9.

"In a face under observation, note the general character and relations of the various parts of the principal features or unchangeable area, shutting out for the time the dento-facial area. Note the relative position and pose of the chin with the malar prominences, forehead and bridge of the nose. Then turn to the dento-facial area or that portion of the physiognomy that it is possible to change in dental orthopedia. Note its general and localized relations from an esthetic standpoint. Compare the outlines of the dento-facial zones with each other and with the adjoining areas of the physiognomy outside of this sphere of possible influence. Note first the character and shape of the chin and its relations to the lower lip. Do the lines of the labio-mental area form a graceful and concave curve to the border of the lip, or are they abnormally deep with pointed chin, or straight, with character lacking? Second—Note the antero-posterior relations of the upper and lower lips to each other, the lips in repose and in talking and laughing. Do they close with ease or with a muscular effort? Is the natural parting of the lips even with the occlusal plane of the teeth or does the lower lip overlap the upper incisors? Is this due to a short upper lip or to an abnormal extrusion of the upper teeth? Third—Note the shape and relations of the upper lip. In its perpendicular lines, is it slightly concave, as it should be, or is it straight or convex? At its lateral boundaries, in repose, does it gracefully curve with a slight deepening of the naso-labial lines where it joins the cheek? Or is the entire upper lip protruded with a partial or complete obliteration of the naso-labial lines and with that peculiar heavy prominence of the middle features which pro-

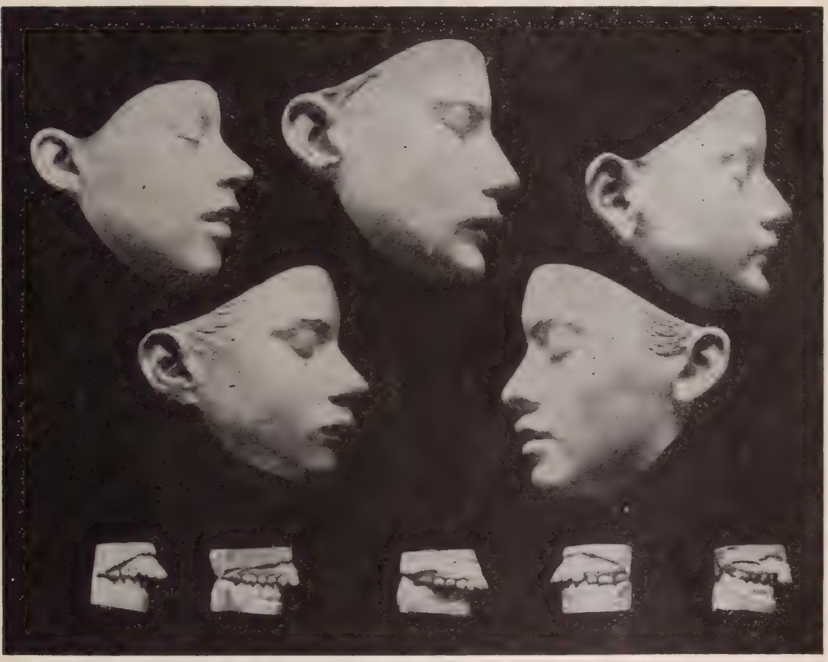

Fig. 10.

duces the effect of a retruded lower jaw or one lacking in normal development? Or is the entire upper lip retruded with an abnormal deepening of the naso-labial lines and retruded facial seating of the lower portion of the nose which produces the effect of prognathism?"

The three faces shown in Fig. 2 may be taken as fair examples of the normal face and the two extreme conditions within the scope of which all dento-facial deformities are confined. It is hardly necessary to point out wherein the deformity lies, as it is seen at a glance that in both instances it is confined to the changeable area. The chins are normally developed and in good relation, as compared with the normal face, although in the first it appears receded and in the last it has the appearance of prognathism.

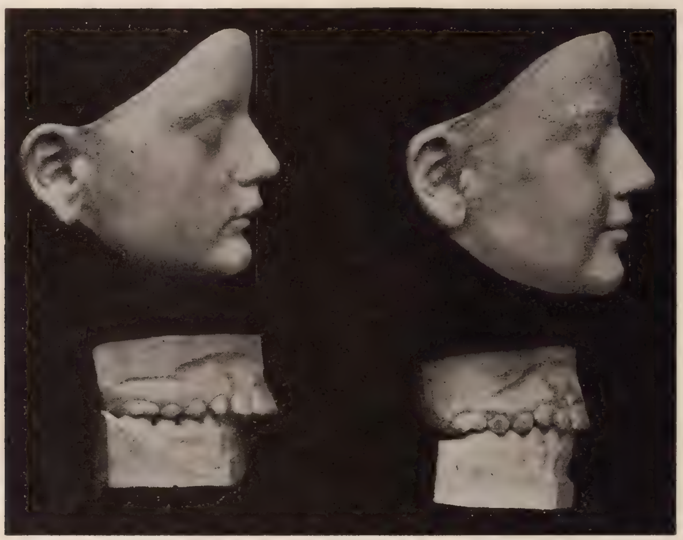

Fig. 11.

After making an intelligent and critical inspection of the face according to the foregoing precepts and forming an opinion relative to the conditions found therein and to the changes, if any, which should be made, to produce a more esthetic appearance in the facial contours, turn your attention to the teeth. Note their position and relation to each other. Note the occlusion, especially that of the first molars, and compare these conditions with the outlines and curves of the face, and this holds good in the diagnosis of every case of dento-facial deformity.

First note wherein the face can be improved in its contours by tooth movement. Then note the malposition of the teeth and determine how they should be best moved to produce the desired change in the face, at the same time maintaining or establishing normal or interdigitating occlusion.

These five faces (see Fig. 3) each show the peculiar characteristics of the full upper and lower protrusions. The chins are normal, but are made to appear receded or even degenerate on account of the fullness of the lips, which has obliterated the mental depressions to a large extent. The occlusion of the teeth in every case was normal, or nearly so, with possibly more or less of a local irregularity of anterior teeth.

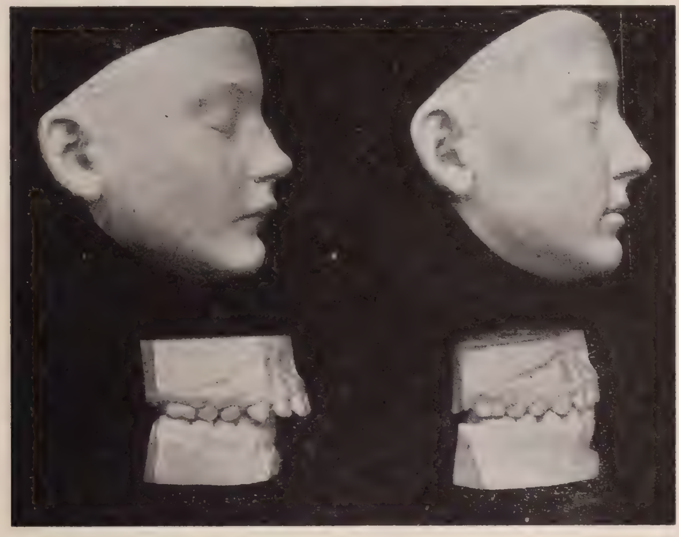

Fig. 12.

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In Fig. 4 is shown another face of the same type, though the chin is not so well shaped or developed. The occlusion of the teeth is seen to be normal, though complicated by open bite.

I have not attempted to show the change that was produced in every face, but those I do show will prove the truth of the diagnosis and method of regulating.

Note in Fig. 5 the perfect occlusion which has been found so common with this type of deformity. Four bicuspids were extracted and upper and lower anterior teeth were drawn back to close the spaces. How much more perfect the finished face is, with its well-defined mental depression, the comparatively graceful pose of the lips and the obliteration of the degenerate appearance of the chin.

Note the prominence of the upper and lower lip of the beginning face in Fig. 6. There is comparatively no mental depression Now note the contruded condition of both upper and lower anterior teeth and imagine the result as reflected in the face of attempting to force them all into alignment, maintaining the full complement of teeth, according to the creed of the non-extractionists. Is it possible that any one, after seeing the results that can be accomplished in such cases by the extraction of teeth and the judicious application of force, can say and believe that extraction is reprehensible?

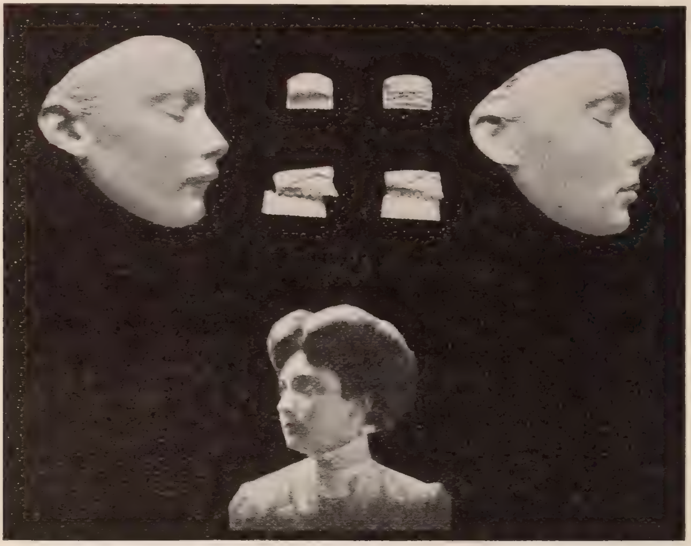

Fig. 13.

Fig. 7 represent another case of bi-maxillary protrusion, showing the receded appearance of the chin, and Fig. 8 shows the teeth models in the same case. The first permanent molars were extracted in preference to the bicuspids, as they were devitalized and in bad condition.

Fig. 9 shows a different type of irregularity. One of maleruption of the cuspids and the upper buccal teeth fully the width of a bicuspid ahead of their normal position. The entire face is comparatively normal and in good proportion, which proves that the lower teeth are in good position, there being no malalignment. The irregularity is confined entirely to the upper teeth, which must be corrected without marring the facial contours.

The first upper bicuspids were extracted and the cuspids brought down into their proper places. The final face shows perfect results and again proves false the method of diagnosing from the teeth alone.

It would have been a simple matter to open space for the cuspids by pushing the incisors forward and establishing normal occlusion and alignment according to the method of the non-extractionists and "bone-growers," but it will readily be seen that such method of procedure would result in a most undesirable change in the face.

The five faces shown in Fig. 10 represent a variation of types of facial deformity having the same occlusion. Concerning this peculiar condition, Dr. Case, of Chicago, says:

"If one will stop for a moment to consider the distinctly different forms of dento-facial inharmonies which may arise with the same apparent character of occlusion of the teeth, he will realize the inadequacy of occlusal relations as a diagnostic sign of real conditions, or as a competent guide to correction."

As diagnosed from the teeth alone, the irregularities might be said to be confined entirely to the upper teeth, or they might all be termed, with equal propriety, protrusions of the upper and retrusions of the lower teeth.

If the operator is one who believes in the occlusion as the sole basis of diagnosis and at the same time is a believer in extraction, then he will extract upper teeth in each case. If he be a non-extractionist he will attempt to establish normal occlusion without extraction.

But an intelligent consideration and study of the faces as compared with the normal facial outline, shows such methods of practice to be false. The face marked "A" shows the deformity to be a protrusion of the crowns of upper teeth. "B" is a protrusion of both upper crowns and roots or bodily protrusion. "C" is a protrusion of the upper teeth and a retrusion of the lower. "D" is a protrusion of the upper dento-facial zone. "E" is a retrusion of the lower teeth and slight protrusion of the upper, better shown in Fig. 11 which did not require the extraction of upper bicuspids. The lower teeth were all moved forward and the truth of the diagnosis is proved in the finished face.

Fig. 12 shows almost the same deformity of the face, caused by retruded lower teeth and slightly protruded upper. The finished face shows the perfect results obtained by moving the lower teeth forward with the intermaxillary force to their normal position in relation to the normal face. The upper teeth were at the same time being moved back the slight distance remaining to establish normal occlusion.

Could such faces, as shown by Figs. 11 and 12, be used as the standard for judging all cases of like malocclusion, as shown by the teeth models, then there would be no question of the reprehensibilty of extraction for its correction.

But imagine the result of practicing this method in connection with such a face as shown by the beginning cast in Fig. 13.

It is true that the finished face is not perfect or normal, but it certainly is a vast improvement on the original face, or the result that would have been accomplished by the non-extractionist.

Hence it will be readily seen that if the occlusion of the teeth and their relation to each other are to be used as the sole basis of diagnosis; if the presence of an apparent local irregularity or malposition of the teeth is to be used as the sole foundation for determining whether or not orthodontic treatment is called for or extraction of teeth is indicated, then indeed is orthodontia on a much lower plane than it has been placed by those of us who have tried to lift it to the level of true art in establishing a method by which not alone the teeth are corrected in their relation to each other, but the facial outlines and contours are beautified.

It is only by striving for and accomplishing the most perfect results in the face as well as in the occlusion that the orthodontist may lay claim to successful practice.

THE IDEAL REALIZED—A DENTAL INSTITUTE WITHOUT FORCEPS.

BY DR. GEORGE CUNNINGHAM, ORGANIZER OF THE CAMBRIDGE DENTAL INSTITUTE FOR CHILDREN.

The nation begins to recognize the question. Statistics are telling. Professor Osler has said that the effects of bad teeth are worse than those arising from the abuse of drink. These statistics should not paralyze. It is said there are not enough dentists to go around. The demand will create the supply. State dentistry has come to stay. Thanks to Sedley Taylor and Cambridge Borough Council we know what can be done, so far as our schools are concerned. We concentrate our treatment on the children of 6 to 8 years of age. That is the one and only way, unless you have a gold mine at your back.

Temporary teeth. Let them go. Temporize and assuage. Concentrate on the molars and a clean mouth.

In 1908, at the London meeting, we reported *re* "the Infantry" and ventured to predict the diagram showing an ever increasing number of unsavable molars with each year of school age, that the future life history of unsavable teeth would be greatly altered.

In 1910 we have no unsavable molars within the limit here given, and we guarantee carrying those already treated beyond school life, if inspection and treatment are continued.

I claim that Sedley Taylor laid down the keel of the first Children's "Dreadnought." No extractions. No application of cold steel in the shape of forceps. Attract, do not deter. The educational effect on other children, other parents, other teachers, others of all classes, is incalculable. It is the abolition of the greatest obstacle to the work of the dentist, viz.: dread of his services.

It should be distinctly remembered that they had not the autocratic power of compulsion. However, firstly, they had conquered the antagonism of the parents by their mothers' meetings, and the sympathetic help of the teachers; secondly, they had gained the confidence of the children by the fact that at the Dental Institute no extractions were made; and lastly, they had shown by reliable statistics that the age limit for treatment was during the seventh year. The sooner that knowledge and experience was assimilated by the Board of Education, the sooner would the nation have the benefit of a health conscience as far as the teeth were concerned.

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*Read before the American Dental Society of Europe, March, 1910.

Our problem in Cambridge was to do the utmost good to get the greatest benefit for the greatest number, making it expansive if possible, with a limited and unfortunately inexpansive income. The only solution was to start with the youngest, and once we had treated a child we assumed the responsibility of keeping its permanent teeth in good condition until it leaves school, without recourse to the forceps. Consequently our age limit will advance one each year for previous patients. We deemed it better to make the teeth of nine children with one decayed tooth artificially sound, than to spend more time in making one child with nine decayed teeth artificially sound. It is getting a maximum advantage for a minimum expenditure.

I place this plan before you as a practical scheme for attacking the evils that are inevitable. It has been tried, and not yet been found wanting. It is no longer a gospel of hope, it is a gospel of certainty, and not one of despair.

I intended more than that to be read into my opening sentence as to what each and every one of us may attempt, providing you will help. We cannot all imitate Mr. Sedley Taylor, the *deus ex machina* of Cambridge, and provide the funds to carry on a Dental Institute. It is not possible for us all even to persuade those in authority—and their masters, the ratepayers—to provide those funds from the rates. But may I read just one more sentence from our report to show what I should like to persuade you all to attempt? "It is manifestly of much greater importance to prevent caries in the teeth than to cure it." Our tenet has always been, "Clean teeth do not decay." As a bald statement it may be open to some discussion, but as an underlying principle it is unassailable. There may be, and indeed there are, other contributory causes of caries, but uncleanliness without doubt is chief.

What each and every one of you can do is to insist that those in whose charge children are should have the opportunity of learning the importance of the care of the teeth in childhood, and the best way to prevent caries.

It seems somewhat incongruous that teachers are supposed to give some teaching about the hygiene of the teeth, when they themselves have not had the opportunity to acquire even the most rudimentary knowledge concerning them.

Most of the school children's parents have neither the means nor the desire to provide conservative treatment for their children's teeth. This simply arises from a lack of knowledge of what is possible, and which it is now our duty to provide. Their ideas of teeth run in a circle; toothache, sleepless nights, then the forceps, and one after the other of the teeth, which Nature meant to last a lifetime, are sacrificed. Consequently, the dread of the forceps has been one of the greatest obstacles to efficient treatment by the dentist. Therefore we determined to abolish the forceps in treating permanent teeth, and so far have succeeded.

When the first opposition the Corporation of Cambridge had to meet, viz., the approval of the Board of Education as to their scheme, was under discussion, the Rev. C. Joseph made an illuminating note that they wanted to thrust this dental treatment on them whether the parents were willing or not. They were anxious that the children's teeth should be seen to in the interest of the health and efficiency of the whole country.

May I endorse the action and congratulate those who are initiating toothbrush clubs? Some time ago I visited the Shepperton Road School in London, and saw the working of a splendid effort the head mistress, Miss Wright, and her staff are making in this direction; and I can assure you the result is very pronounced and pleasing, despite the fact that the brushes are far from being ideal in size, form or consistency. Such efforts are feasible in every school in this country, and the end is just as sure. Those of you who have experienced the discomfort which attends the filling of a tooth will, I am sure, endorse my statement that the method promises to be much more pleasant. Lest you should think that with the subject constantly before me, I incline to exaggerate its importance, let me requote what Professor Osler has said: "If I were called upon to state which of the two, in my opinion, causes the most evil, alcohol or decayed teeth, I should unhesitatingly say decayed teeth."

Knowing fully my world and its environment, having been both patient and operator, I am convinced that the elimination of fear or dread of pain in the dental chair is the one and only, the true solution of how our teeth can be saved. Alas! too late for us, we learn.

Yet, happily, not too late for our children, provided they are not much more than 7 or 8 years of age.

This is a work of national importance, irrespective of party, class or creed.

Any plan for the dental treatment of school children must be somewhat restricted at present by the presence of unsavable dentures. In private practice many of these teeth could be saved by crowning and other costly methods of procedure, which would be impracticable in a public institution. An unsavable tooth has a ruinous effect on the whole denture, since it renders the one opposite to it in the other jaw valueless, and much more liable to caries. When both sides are thus affected (which is almost invariably the case with older children) any treatment such as a school dentist could apply could be of no permanent value. The fundamental principle at Cambridge has been prevention rather than cure of already existing evils.

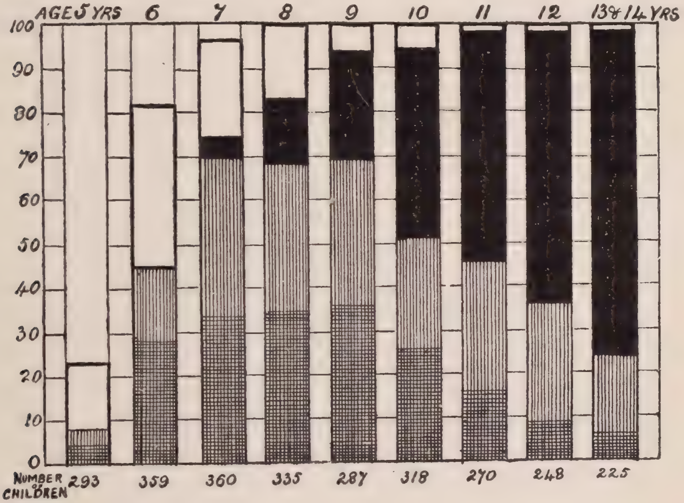
PERCENTAGE OF CHILDREN TREATED.

The height of the first three columns represents the percentage of children at the ages of 5, 6 and 7 years who have one or more permanent molars. From the eighth year upwards all the children have some permanent teeth, and consequently each column represents 100 per cent. The uppermost clear parts of the columns represent the percentage of children who have one or more "unsavable" permanent teeth each. The remaining parts of the columns represent the percentage of children who have carious teeth, all of which are savable. This latter class has been subdivided into those treated and made artificially sound (as shown by the darker shading) and those having carious teeth who were not treated (as shown by the lighter shading).

This diagram, in addition to representing graphically what has been accomplished by fillings during the past year, shows, by the difference which exists between the two lightly shaded portions of the columns, what might have been affected had means and parents' consent permitted. A considerable portion of all the children of 5 and 6 years of age with carious teeth have been treated, and especial attention has been given to children of these years in order to attain this result. Practically all such children as have been classed in the examination as having "savable" teeth were invited through their parents, to attend. The difference between the number of children and of those made "artificially" sound, is mainly accounted for by failures to take advantage of the treatment thus offered.

CHILDREN WITH "UNSAVABLE TEETH."

The black part of the column shows very forcibly the inevitably rapid increase in the number of children with "unsavable" teeth. From 10 years of age upwards they form a considerable proportion of the whole column, but at some previous time the teeth represented here were all savable. Subject to rare exceptions, if all these teeth were timely saved, and received periodical attention, no others could become "unsavable" during school life. Consequently after some time the last column might be expected to represent only as many cases with "unsavable" teeth as are now represented by the column for 7, or at most 8 years.



The height of the column indicates the Percentage of Children having Permanent Molars, the shaded parts of these columns show those with sound and carious teeth.

SOUND □ SAVABLE ▥ SAVED ▦ UNSAVABLE ■

It will be observed that the amount of the dark shading (representing the children treated) in the columns of children more than 9 years old is approximately equal to that of the light shading representing the children with savable teeth who were not treated under 9. This shows that if the whole work done had been devoted to the school children under 9 years of age, it would have sufficed to have made them all artificially sound. This is undoubtedly from every point of view the right ideal to pursue.

It was evident from the first that at present no effort could be made to cope with the carious temporary teeth, beyond extracting those that were either unduly retained or were a menace to the child's health.

A report of the work done at the Dental Institute during the year 1910 is now in course of preparation. In this report a special section will be devoted to the present condition of the teeth of children who were certified as "artificially sound" in the previous year. The average number of teeth which become carious in the interval comes to just over 1 per child. Taking the children aged 11 years as an example there were on the average 16 sound or artificially sound permanent teeth and 1 carious in each denture. (As no conservative treatment was or could be attempted for the temporary teeth they are not considered here.) As a contrast the particulars of similar children at that age before any treatment was attempted are, 12, carious savable 4, and 1 unsavable tooth per child. Figures will be given in this report concerning several hundred children whose ages ranged from 6 to 13 years. The permanent teeth of these children were made artificially sound in 1908 and were not seen until about 12 months had elapsed in each case. Not one unsavable tooth was found and provided all these children can be so periodically examined and treated, they will be able to leave school at 14 years of age with a complete denture of sound teeth. This represents the scientific ideal which we are now very sure of attaining. Consider the general and popular aspect as well. These children will have passed through a most critical period of their existence, when the foundation of a strong and healthy body is being erected. Those now entering school will be assured of having an efficient means of mastication during this time, and even our limited attention to the temporary teeth will be sufficient to prevent any injury being done to the system by the continual absorption of septic matter. Were this early and thorough dental attention not given to them, many of these same children would quickly lose a part of their masticating capacity, and the condition of their teeth would become progressively worse until pain and sepsis compelled a sacrifice of one tooth after another. Such a denture would considerably handicap an adult, how much more injury must it effect on a growing child.

If we apply the summary of the forthcoming Report of 1910 to the diagram, it will be seen that we have succeeded in removing all the black part of the columns representing unsavable teeth from all the children treated, between the age of 6, 7, 8 and 9. That means that no permanent teeth have been extracted for any of these children. Consequently I think I have succeeded in justifying the title of the paper, A Successful Dental Institute for Children Without Forceps.

MICROPHOTOGRAPHY IN NATURAL COLORS.*

BY C. FRANCIS BÖDECKER, D. D. S., BERLIN, GERMANY.

Ever since the invention of photography, it has been the aim of the photographic chemist to discover a method for the production of a picture in natural colors. No progress, however, was made along this line till the middle of last century and only about in 1890 were encouraging results obtained. There are two methods by which photographs in natural colors can be made, the one by the three color process, the other by means of the three color screen. The three color process is very complicated and requires a great amount of special apparatus. In brief, this method is as follows: Three negatives, each taken through a filter complementary in color to that of the positive, are made in a specially constructed camera. Each negative is printed in its proper primary color, and the three resultant pictures exactly superimposed. I need not enumerate the difficulties of obtaining three negatives exactly alike, and properly combining the prints in their correct position. It is, therefore, easily understood why this method of producing colored photographs was practiced by so few photographers, amateur or professional.

The color screen process is more simple in manipulation as only one photograph of the object on a specially prepared plate is required. This plate consists of very thin, selected plate glass, the color screen and the sensitive photographic film. The color screen, in contact with the glass is made up of innumerable units, transparent, red, green and blue in color, and covered by the ordinary sensitive panchromatic film. There are, at present, two such plates on the market, the Autochrom and the Omnicolor. The fundamental principle of both these plates is the same, each containing three primary colors. The difference in these plates is in the production and arrangement of the color units in the screen.

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*Read before the American Dental Society of Europe, March, 1910.

In the Autochrom plate, the color screen consists of a single layer of starch grains of three different colors, i. e. red, green and blue equally distributed over the entire surface. Covering this layer is the usual sensitive film of bromide of silver.

The screen of the Omnicolor plate, on the other hand, consists of a thin gelatin film, stained with a net work of green and blue lines enclosing red squares. The colors in these Omnicolor plates are more evenly distributed, as they alternate with perfect regularity, but the color units as represented by the starch grains in the Autochrom plates are much smaller. The smaller these units are, the better is the reproduction of color. For this reason, the Autochrom plate is better adapted for microphotography and in the following description only this plate will be considered.

I will now explain how colors are reproduced in the finished diapositive. In taking a photograph, the plate is placed with the glass side towards the lens, so that the light, must first pass through the color screen, i. e. the colored starch grains, before striking the sensitive film of the plate. Let us suppose that a ray of red light strikes the plate. As only the red grains allow this color of light to pass through, only those portions of the sensitive film lying immediately underneath these grains will be exposed to the action of the light. The plate, upon being developed in the ordinary way, then shows a blackened deposit of silver beneath the red grains. We have at this stage, what is photographically known as a negative and must now proceed to reverse the image, that is, produce a positive. To this end, we first dissolve out the blackened silver by means of potassium permanganate, there again uncovering the red grains. This still leaves the silver unchanged under the green and blue grains. The plate is now exposed and developed in strong daylight. This blackens all remaining silver under the green and blue grains, thereby blocking out all light, excepting that which passes through the red grains. In the same way, the green and the blue are obtained. The principle underlying the production of the different colors by this process is dependent upon the fact that by a mixture of primary colors in different proportions, any color may be reproduced.

The use of the ordinary color plates on the market in microphotography, was attended with special difficulties. These plates are intended for exposure to ordinary daylight, and any artificial source of light results in an incorrect rendering of the color values. In microphotography, only the arc lamp has proved to be a sufficiently powerful illuminant and in order to make this light the same color as that of daylight, special color filters—stained pieces of glass—are necessary. The construction of such filters requires experience as well as costly apparatus. My early attempts in microphotography in colors were not very satisfactory owing to the lack of a proper filter. This difficulty has now been solved. I wish to thank Dr. W. Scheffer, of Berlin, for putting at my disposal a new filter which he has sepcially constructed for the purpose.

The Autochrom plate as compared to the ordinary diapositive, shows considerably less transparency. This is due to the fact that all light, even that which produces a white on the screen, must first pass through the layer of colored starch grains. For this reason, a powerful arc lamp is needed to successfully project such diapositives.

Here is a photograph of frog's blood under an enlargement of 6,000 diameters. The interesting features of frog's blood is that the red corpuscles are oval, contain nuclei and are comparatively large, whereas the human red blood corpuscles are only half the size, possess no nuclei and are round. The white blood cell, seen in the center of the plate is similar to that found in the human blood.

Here is a slide which depicts a cross section of the external layer of a sponge Geodia, under an enlargement of 10,200 diameters. This layer consists of millions of minute silicious spheres imbedded in an organic matrix. It was always supposed that these spheres were absolutely inorganic in their nature until I dissolved the silicates by a method similar to my celloidin decalcifying method, which I described to you at the last meeting. It was then found that they contain a delicate net work of organic matter radiating from the center which is clearly shown in several of these areas.

I have here a section of the skin of man enlarged 35 diameters. On the top we see first the stratum corneum stained purple, then the stratum malpighii also purple. Under this the reticular layer of the cornium, stained red which is fibrous in nature. Still further down we see the stratum of adipose tissue which appears white. Here and there cross sections of capillarics are seen which were previously injected with Blue de Lyon and therefore appear deep blue.

Another slide depicts, under an enlargement of 85 diameters the primary cartilage of a long bone undergoing the process of ossification. The cartilage cells are seen at first evenly distributed at the very top of the slide. A little lower, they become enlarged, while still further down they arrange themselves in columns like stacks of coins. The walls of the cells composing these stacks become thinner and thinner till they finally break and form channels for blood vessels. Osteoblasts are then formed on the walls of these channels and the cartilage becomes organized into true bone. This slide, gentlemen, shows the value of microphotographs in natural colors for purposes of demonstration and teaching. This section was stained with rubin and haematoxylin, causing the cartilage and its cells to appear purple while the newly formed bone is stained red. A close examination of the margin of the transformation process, reveals trabeculae of purple cartilage extending into the newly formed red bone.

Here is a slide which shows a cross section of a fully developed, decalcified long bone stained with picric acid and haematoxylin. The blood vessels are injected with Blue de Lyon and therefore appear deep blue.

Here is a cross section of the spinal cord from the cervical region. Enlargement 8 diameters. The grey matter, in the shape of an "H" occupies the central position and is imbedded in the white matter.

Another is a cross section of the superior maxillary and adjoining parts, of a human embryo in the fifth month; enlargement 35 diameters. In it we see two tooth germs of molar teeth. At the top of the slide, the lower part of the nasal cavity and vomar can be seen while below the roof of the mouth is just visible. As we all know, the tooth germ is first formed by a dipping down of the oral epithelium. The band connecting the germ with the epithelium is shown. On the left, one sees the germ for the permanent tooth already formed, while on the right the development is apparently not as far advanced. This is, in fact, not the case, as the section does not strike the right and left germ in the same plane.

My last slide shows one of these tooth germs of the upper jaw under a higher magnification of 70 diameters. The dense accumulation of cells stained brown, seen at the top of the slide, is the dentinal papilla, that part which forms dentin, pulp and cementum, in fact everything except the enamel. Below, is seen the enamel organ in the shape of an inverted bell.

In conclusion, I wish to say, gentlemen, that the slides I have shown you represent the present state of perfection of microphotography in colors. Needless to say, the results are as yet far from perfect. Whether it is possible, by improving the color screen method or whether entirely new principles must be discovered to give perfect color reproductions, the future alone can tell.

THE SUPERIORITY OF SILK LIGATURES OVER OTHER APPLIANCES IN REGULATING TEETH.*

BY W. J. YOUNGER, M. D., PARIS.

I take it for granted that we are all agreed on this, that the best method of regulating teeth is that which accomplishes the result in the shortest space of time, with the least pain, the least inconvenience and the least distress and discomfort to the patient.

I claim that silk ligatures properly prepared and applied will meet these conditions better than any other device used in Orthodontia.

To begin with, ligatures do not obtrude on the sight, and they do not occupy any room in the mouth. They are not in the way in eating or speaking and the patient has not the sensation of wearing a bit as with other appliances. They do their work quietly, gently, effectively and rapidly, not occupying one-fourth of the time required by other contrivances.

It is marvelous the force that is resident in these strings and which can be exerted in moving the most obstinate of cases. I was reminded but a few weeks ago, of a case in point by a fellow practitioner of San Francisco who was visiting Paris. This confrère's daughter had a cuspid jutting into the palatine arch which he had vainly tried, even with jack screws, to move into place. But try as he would he could not make the tooth budge, so on my suggestion he sent her to me and within two weeks my little strings had drawn the tooth into position.

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*Read before the American Dental Society of Europe, March, 1910.

While ligatures can be employed in extensive operations as in the reduction of prognathism and even in widening of the arch, their greatest utility and most effective work is found in their ability to draw out retained or imbedded teeth and to force into their alveoli, teeth that have grown out of their sockets. In these two operations the action of strings is unique for I know of no other appliance that will obtain these results.

Their more frequent use, however, is in torsion or turning teeth and drawing into their proper places in the arch protruding and retruding teeth. Threads taking up no room in the interdental spaces, teeth can be turned or moved within the limit of their own diameters.

The power of ligatures lies in their strong contractability when stretched and their working strength rests in an expansion of two to three millimeters, Threads to be effective must exercise their power within this stretch limit and of course the nearer the limit of tension the greater the power.

The superiority of strings over rubber lies in their greater elastic resistance or contractibility and their needing so much less room; neither do they produce that naggy or worrying irritation that accompanies the traction of rubber. Also their color being that of the teeth makes them less noticeable.

But the greatest blessing conferred by ligatures is to adult humanity. It is all right for children to wear apparatus that deforms their appearance, that interferes with their speech and makes mastication difficult. They bear it because they are compelled to and everyone else accepts their awkward appearance, etc. But when it comes to those who have entered the period of adolescence—when pride in personal appearance is awakened and looks count for so much, or have passed into full maturity—the wearing of such impedimenta would not only be intolerable from the personal discomfort it would create but the sight in the mouth of this machinery would render them liable to the criticism of their associates and the ridicule of strangers. It is for this reason that adults do not submit to the regulation of their dental deformities and the skill of the Orthodontist is confined to the period of childhood. Whereas, with the employment of ligatures there is no limit as far as age is concerned and I have employed this means for making mouths presentable, graceful and attractive even in persons of advanced life. In illustration of this I have brought casts to show you of an extensive case of regulation in a lady of sixty-six.

Grown people willingly tolerate ligatures when they would repel an apparatus because strings being of light color are practically invisible. And this feature of invisibility is more to them than the fact of their non interference with the function of speech and mastication. I have regulated by strings when even intimate friends were not aware of the process going on.

It is on account of my use of ligatures that the practice I have in Orthodontia is almost entirely with adults and it is in the hope that you may extend to your own clientele the great benefit that can result by the proper use of ligatures, in developing in their appearance a grace, charm, beauty and refinement that they could not otherwise possess that I am presenting you with this short paper—which I shall illustrate by the presentation of projections and later on by a clinical demonstration. I will now show you a few typical cases illustrative of the use of strings and the rapidity of their operation, but I shall leave for the clinic the demonstration of the preparation and the application of the ligatures.

First case—Is that of a retained cuspid in a young lady of about twenty, the daughter of one of my esteemed French confrères. He had vainly tried all the usual methods in such cases. Within two weeks the strings had delivered it from its bony prison as shown in the accompanying cast.

Second case—Is that of a girl of nine years. The centrals had grown out divergent so that there was an unsightly V-shaped space between them. Going into the country to spend a vacation with her grandparents, they took her to a dentist to have these teeth brought together. Saying that that was an easy matter, he slipped over the teeth a rubber band or ring. That night the child suffered intensely and in the morning the gums were found very much congested and inflamed but the ring had disappeared. The dentist said the ring must have dropped off. A diligent search was made but the ring could not be found. The congestion increased and the teeth commenced to grow loose and to protrude, the pain all the while continuing. Then pus appeared under the gum line, upon which the dentist advised the extraction of the teeth. To this the parents would not consent and she was brought to the city. But the advice of all those that were consulted was to extract the teeth. Pus kept on increasing in quantity and the teeth to grow longer and longer till it seemed but a short while when the question of extraction would no longer exist. At this point they consulted a distinguished professor, who, examining closely, discovered something peculiar indenting the gums. This turned out to be the long lost rubber ring which he promptly removed. After several ineffectual treatments and having noticed my work at the Ecole Dentaire de Paris, he advised as a last resource to consult me. I arrived at the conclusion that the teeth could be saved. I found that attachment existed only at the apices and, observing a cloud in each of the teeth, took for granted that the pulps were dead and that the pus was due to their putrescence. I therefore drilled into the pulp chamber of the right incisor. I found the pulp entirely disorganized—only a mass of blood, a few sensitive filaments and some of the enveloping membrane but no fetor nor bad odor of any kind nor pus. I then tried to force a sterilizing liquid through the root thinking to wash the pus away from the apex, but the liquid not passing through revealed the fact, that the pus was an extraneous product and after placing an aseptic temporary filling in the canal and pulp chamber I proceeded to search for the cause and origin of the suppuration. I found encircling its root a hard incrustation which on examination proved to be pyorrheal. After removal of this deposit from both roots the formation of pus entirely ceased and I commenced the work of forcing the teeth into their alveoli. I did this by the use of waxed silk ligatures attached to the impacted laterals. By this means the centrals were forced into their sockets and the laterals assisted downwards into position.

Third case—This was a girl of 14 with decided prognathism and contracted arch. In this case I concluded to widen the arch first and to use the expanding wire system. But the tongue would not tolerate the mechanism and it had to be removed, so I conceived the idea of expanding the arch by means of ligatures. I put turning strings on the centrals so as to bring up their distal edges and depress their proximal until they formed a level plane with one another. Keeping these centrals firmly tied together in this position, I passed a string over these teeth and under the laterals and brought them up over the edges of the centrals. This, as you see, is simply an application of one of the lever principles—the centrals acting as a fulcrum—the laterals—the weight or resistance and the string—the power. Now, holding these teeth in this position I passed a string over the whole and under the cuspids until they were lifted to and over the level of the laterals. Once more holding all these teeth solidly in this position I passed another string over these six teeth—carrying it, on both sides, behind the bicuspids and first molar—around the molar and under the bicuspids again—over the cuspids to the front. The desired width having been attained—the laterals and cuspids by the use of strings were readily manipulated into artistic position. It will be observed that while the centrals were being used as the basis to force out the laterals and cuspids the power exercised in turn pressed them back or inwards, thus reducing the prognathism at the same time that the expansion was being accomplished.

In proof of what I have stated about the rapidity with which ligatures work I will state that the impression for the first cast was taken April 10, 1906, and the one for the last on May 2d—the month following. Thus you will see that this whole work, from beginning to end, was accomplished in just 21 days.

Fourth case—A young lady of 24, prognathism complicated with extensive pyorrhea. The right upper lateral had been lost in consequence of the ravage of pyorrhea, leaving a space somewhat larger than that occupied by the tooth itself. The junction of the centrals instead of being on the median line was nearly a centimeter to the left so that instead of planting a lateral, I drew, by means of ligatures, the incisors towards the right cuspid at the same time drawing the cuspid slightly towards the centrals. By this means the gap left by the absent lateral was closed, the junction of the centrals was brought to the median line and the prognathism reduced. Now for a little artistic business. The incisors being disfiguratingly long and the gums having receded from the crowns in consequence of the extensive pyorrhea, I cut off the crowns—then shortened the roots about 2 millimeters and reset the crowns on the roots. Thus, as you see by the casts, very much improving the appearance of the mouth. But this was not all that was accomplished by this process for by shortening the teeth the strain in mastication, etc., was much lessened and the solidification in their sockets took place much more rapidly.

Fifth case—The interesting feature in this case is the age of the patient in whom this extensive regulation was effected—the lady being in her sixty-seventh year. The point, however, that I wish to call your attention particularly to is the bringing forward of the lower molar under the upper. Thus two important teeth that from their position were absolutely useless and were being gradually exfoliated were brought to render good service again as organs of mastication.

There is something else I would like to call your attention to—it is this—the bicuspid, which is an implantation. Ten days after this tooth was implanted, I removed the retaining strings with the purpose of putting on fresh ones, but I found the tooth so solidified and so well attached that I did not deem further ligating necessary.

The time between the taking of the first model and the last was just 90 days. This includes the time that was employed in removing the pyorrheal deposits which had to be effected before the regulation of the teeth could be commenced.

The lesson of this case is a proof of what I have already stated—that there is no age limit to regulation.

Sixth case—The subject of this case was a gentleman of forty. I call it my miracle case. It should properly be considered a case of eccentric regulation.

He came to me just twelve days before my abandonment of San Francisco for Chicago. It was a case of decided prognathism, the upper centrals, especially, standing out at an angle of at least 45 degrees. The lower incisors were very much elongated and the left central had worn through the palatine surface covering the root of the upper central, as shown in the cast and impinged upon its denuded root every time the mouth was closed. The teeth were also badly affected with pyorrhea. He wished me to cure the disease but particularly to reduce his deformity. Notwithstanding that I told him I was leaving for Chicago in 12 days, that to do what he wished would require nearer 12 months, that to effect such a series of operations in those few days would be nothing short of a miracle—and I was not performing miracles. He insisted. I shall never forget the intenseness of the look with which he regarded me as he placed himself squarely in front, seizing me by both shoulders and trembling with the fervor of his emotion gazing into my eyes with an intensity designed to force into my very soul conviction of the truth of his words, and said "I tell you Dr. Younger that you *can* do this and *will* do this in 12 days." Something similar had been said to me once before, which caused me to perform an operation with success, that I had pronounced impossible and led me to the discovery that tissue did not die immediately upon being severed from blood source as was believed, but maintained vitality for a more or less prolonged period according to its nature and histological structure. The article that resulted from this discovery and presented to the California State Dental Association in 1886 was entitled "Persistent vitality of tissue." And the idea struck me that perhaps as in the other case success might reward the effort. So without any definite idea as to how the feat was to be accomplished but trusting to getting an inspiration that would reveal a way, I started in, first, by removing the deposits on the roots of the teeth to be moved. Then grinding down the lower incisors, which were a decided obstacle to any retrocession of the upper ones—as far as the limit of safety and the appearance of the teeth would permit, I put on the ligatures to force the upper incisors back. In four days the strings had drawn the teeth half way *but* they were again in contact with the lower teeth and further progress seemed impossible. Not only that, the straightening had brought the crowns below the edge of the gum line and gave an appearance as unsightly if not more grotesque than they had in their primitive position. For the moment I was in despair but then my inspiration came and I saw exactly what was to be done. I pushed the lower incisors back as far as possible with my thumbs and then put on the strings so as to force them still further back in order to allow of bringing the upper teeth to a perpendicular direction. This was effected in another four days. The pressure had been so violent and the movement so rapid that the roots had torn away from the front portion of their alveoli leaving a slight cleavage or separation between the outer walls of the sockets and the roots.

Eight of the twelve days had now been consumed and there were but four more in which to finish, but the hard part of the task had been accomplished. So I rested the teeth in their position for 3 days in order to accustom their alveoli as much as possible to the new direction and on the twelfth day I extracted the four upper incisors, removed their pulps, filled the canals and pulp chambers, deepened their sockets a full centimeter, forced the teeth into artistic position, tied them in place, and before the end of the 12th day I had accomplished the miracle. You behold the result in this cast which was taken a year after when I again saw my patient.

Gentlemen, these are only a few examples from many cases but I think I have shown enough to prove to you, without I hope fatiguing you too much, the unique power of ligatures in overcoming rapidly the most difficult and obstinate problems the Orthodontist has to contend with, problems which cannot be overcome by any other means than by, to use an old lady patient's remark, "Those refined little strings."

EXPERIENCES WITH CAST METAL.*

BY C. N. THOMPSON, D. D. S., CHICAGO, ILL.

We have not yet had an accumulation of uniform experience sufficient to make many conclusive deductions that may be regarded as infallible; therefore what is said at this time upon the subject must necessarily be open to discussion.

The art of casting gold and silver and their alloys is not new but that knowledge has no bearing upon the question under consideration, for our interest in cast gold is centered upon the art of reproducing wax models in gold and its alloys, and its application in dentistry as presented to us by our Dr. Taggart.

Accumulated experiences would reveal many failures, some remarkable creations as the result of cast air and cracks, and finally some success, but the future looks bright.

The practical use of cast gold in dental practice had its inception in the introduction of the sprue and disappearing wax models, neither of them new, either single or in conjunction, except as applied to dentistry, and it seems incredible that we should so long have remained blind to their value, especially since some of us have been acquainted with other forms of their use.

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*Read before the Illinois State Dental Society, May, 1910.

The real vital part of this process is vested in the wax impression, sprue, casting ring and base. Whether the gold is best forced into place by air or steam pressure, vacuum or centrifugal force is yet an open question and I am not prepared to discuss it though a combination of air pressure and vacuum in one machine would seem to be most direct.

But the details connected with handling these appliances including investment materials, in order to reproduce wax models accurately, using alloys of gold that give the least shrinkage, sufficient malleability to burnish easily, yet enough rigidity to withstand all necessary stress and in cases of bridge piers good stiffness, taking into consideration the casting of plates, crowns, bridge intermediates and fillings, will require time to decide. But it is certain already that the matter of using the proper alloys as required by varying conditions is of great importance and that gold of unknown karat cannot be used indiscriminately.

IMPRESSION WAX.

The wax impression has been discussed so freely in the journals that we could almost pass it, yet the ideas about heating and handling it are so varied that we must stop long enough to say that none but the surface of the wax should be really soft. The main body should be about as hard as the fingers will handle, with the outer surface softened quickly immediately before using and if possible be confined with some sort of matrix leaving, in case of fillings, at least a film of wax remaining over the margins. Most wax is too soft for accurate work, requiring too much cold to harden it. Yet some are so brittle and chill so quickly afterwards that perfect adaptation is almost out of the question and carving without reheating is next to impossible. A good guide is to choose one that will get quite hard in the mouth without chilling if given time, and for all work out of the mouth something not so hard is best as it is easier handled and can be chilled to suit. Brittleness in impression wax is always a menace, it should be hard but tough. In case of fillings there are some good features about taking an impression of cavities and working from a model, mainly though at the present time because in case of failure in casting, another can be made. Yet it looks as if when the right material for a model can be secured we would all come to it for inlays.

THE SPRUE.

The general dimensions of the ideal sprue must depend somewhat upon the machine in which it is to be used. Air pressure machines require that the casting ring shall be of nearly uniform length which necessitates sprues of various lengths in order that wax models of various sizes may be placed central in the ring but a sprue of uniform length may be used in the others by using a casting ring of the proper length to suit the case. This seems best as it gives uniform distance from the crucible bottom to the impression in all cases.

The sprues furnished with some machines seem coarse and fit only for heavy pieces, for gold in its transfer from the crucible to mold needs a passage somewhat in proportion to the size of the case, therefore an assortment of sprues to correspond somewhat with the various sized pieces of work would be desirable and increase exactness. The larger and shorter the sprue the less heat and pressure will be required to cast sharp and because of the inefficiency of our investment materials the less of both the better will be the result.

Long slender sprues remove the mold too far, giving the metal time to chill in transit; the nearer the mold can be to the crucible without endangering caving in the top of the investment the less force will be required to transfer the gold from one to the other. Yet the escape of air from the mold is equally necessary, and is best facilitated by having the mold as near the bottom as is safe against bulging, for as the air must escape through the porosity of the investment the shorter the distance the easier will it release. So casting rings of varying lengths are necessary in order that the mold outlines may be equally distant from both top and bottom, though the same result may be easily gained by the use of an instrument resembling the casting ring base to press into the bottom of the ring while investing, hollowing it somewhat like the crucible on the opposite end, thus holding the impression central.

The end of the sprue upon which the wax is fastened in order to give the greatest security with the least heat or pressure in attaching should be made like a tenon to fit a mortise, that is, made perfectly flat across the end yet having a thin feather of metal about 1/32 of an inch long protruding from it. This when heated in a very small flame in order to heat the very tip only, imbeds into the wax to the shoulder easily and cools quickly lessening distortion and prevents the wax from turning during investment.

It is found good practice whenever possible and practical to imbed the sprue in the impression before removing it as it makes a convenient attachment and tends toward accuracy because of one less handling.

A sprue with a fine hole drilled central from end to end that will admit of a small brass wire that can be removed and attached to the impression facilitates handling by attaching it while the wax is in place either in the cavity or elsewhere and returning the wire into its place in the sprue before investing. This makes a dainty way of handling small pieces.

CASTING RING.

For investment materials of the present day there is a call for an inside formation of some kind to prevent the investment from slipping out of the ring in handling, due mostly to the ring expansion under heat. This arrangement usually takes the form of a groove, chime rim at the bottom, or a gradual taper of the ring. The groove seems most practical and if this guard could be arranged near the end of the ring opposite to the crucible it would answer every purpose, be easier to keep clean and be below the stress where it would prevent cracking. The frequency with which cracked investments occur when this offset is placed on a level with the wax model suggests that the pressure incident to the casting process was sufficient to force the investment below the groove downward and produce a crack at that point, for if a ring will expand in circumference sufficient to loosen its contents, it will also expand lengthwise and protrude beyond the investment slightly which being held central gives room for the investment below to drop slightly under pressure and occasionally cause a crack.

CASTING RING BASE.

The general form of this part is determined by the requirements of each of the various machines or methods and is usually what it must be to fit conditions, and as long as it gives a crucible form to hold the molten gold and a free-throated exit into the sprue track giving a good seat for the sprue and ring and being well polished there is little more to ask. However, the proper depth of the crucible seems mostly over-done tending to unnecessarily pocket the blowpipe flame and in the case of some to overheat the pressure pad above it, and as a suggestion, a crucible only large enough to hold the melted slug a little more than half its depth would seem fair. At any rate I find it an improvement to broaden the top of the investment crucible by trimming off the corner. This, however, is with the understanding that the casting ring stands above investment as for air or steam pressure. The sprue seat in the base could easily be made adjustable by having a screw follower and in this way lengthen or shorten the sprue at will, but it is hard to keep clear and destroys the finish in the investment at the union of the crucible and sprue track, which is important.

INVESTMENT MATERIALS.

The adage, "that fools will sometimes enter where angels fear to tread," seems applicable to the subject at this time, for who knows? we have tried most of them, found few of them worthless, none of them perfect; yet as they are the best we have what are the results?

The writer once stopped to listen to an investment manufacturer, and a good man too, who was extolling one of his make for inlay purposes, the chief virtue of which was that it did not change form under heat and when asked if it did not expand at all he, in turning to answer, saw Dr. Prothero and his answer was "I do not know."

The truth is that during a series of experimental tests, the writer found it very difficult to get anything like uniform results and it will probably be some time before we will get what we want, so the best that I can do is to pass along to the finished casting and work back.

After cleaning the cast piece the first thought is that it is very rough and a magnifier reveals two things: first, that there are always little air spaces in the investment: second, that there are numerous little pits and prominences and that usually most of the pits are on what was the bottom of the cast as it stood in the machine. This latter means that gravity had something to do with it and that our investment materials are too loosely constructed, for a great part of the imperfections to be found in finished work are caused by particles from the inner walls of the mold being displaced by the movements produced by heat expansion. These particles collect upon the bottom of the mold as it stands in the machine, causing pits by displacing the gold and prominences in the places they vacated. Such disturbances are probably caused at the time of most intense heat action, which is the casting period and the jarring incident to the action of applying the machine. Vacuum machines here hold the palm because of the smoothness of their action.

Careless or rapid heating and over-heating are also causes of these defects, all moisture and vapor should be given time to escape without bubbling or vigor of any kind, as the movements of boiling wax and accumulated water in the mold must loosen particles that afterward settle where they are not wanted and should never occur. If during the warming up period for ordinary work the investments are inverted, that is with the crucible down, part at least of the wax and moisture will escape early and harmlessly. But for fine work the investment should be set upon asbestos paper and have the top of the ring covered giving plenty of time at a heat below the boiling point until dry. This proceedure allows the hot asbestos to absorb the wax and moisture from the bottom and the cover prevents action upward that might disturb the interior of the mold.

Over-heating destroys the bond in the investment, allowing particles to become detached and rattle out of place. Cracks also finally form from over-heating. A well set, dry and clean mold is necessary, the hotter the better, provided that it is very quickly heated and below a semblance of red. I find myself using less heat on the investment with experience.

Excessively hot gold in casting may easily destroy an otherwise good mold by burning the exposed protruding points on the inside as seen by the rocking of fillings upon prominences in cavities. This in the opinion of the writer marks the passing of the oxyhydrogen blowpipe as used today, as it is so very easy in its use to unnecessarily overheat the metal and a gas blowpipe can easily be timed to give about what is necessary.

The writer's experience at this time is that the best and smoothest casts are secured by first painting the wax impression, sprue, and the casting ring base with a very thin layer of an exceedingly fine powdered non-fusing investment material, afterward completing the investment with a coarse hard open material.

This gives smoothness to the piece where it is needed without clogging the air spaces throughout the entire investment.

AIR IN THE MOLD.

The resistive action of the air in the mold when casting by pressure is a factor not given due consideration, and as the question of vent is dependent upon the porosity of the investment it looks as if a tight investment would forestall a clear cast and it is my experience that it will.

Air pressure machines with a solid metal bottom ring and using the usual investment compound will not cast sharp, whereas with the same conditions and an open bottom ring with a vent cut in base will cast with little pressure. This being true, the investment must always contain vent holes between the particles of the investment for the escape of air which will always be sufficient to create an irregular surface to all castings, so the finer the particles of the investment material next to the mold the better, and the coarser balance of the investment gives free vent. The most desirable finish to a casting is that it may be perfectly smooth, sharp and clear, and as retentive roughness is necessary it can easily be created on the surfaces desired by the use of a saw, bur or stone. A roughened exterior to a cast piece means pitted margins as well as on other parts.

Smoothness is dependent upon several things: one of the most noticeable is that the alloys that oxidize seem not only to cast with a poor surface but adhere to the particles of investment as though fused and are hard to clean, and the lower the karat the more marked is this tendency; besides, the alloys seem to volatilize and if hot enough give off gas and seldom cast perfect.

Alloys of bench scraps if worked out with the oxy-hydrogen blowpipe repeatedly and pickled hot between will finally become pure enough to use in general bench work but not for inlays. When burning alloys out of gold of unknown karat by the use of the oxy-hydrogen blowpipe there is ever danger of explosion if the gold is poured into sulphuric acid. It should cool until it can be lifted with pliers and boiled if necessary. Borax has no place in the crucible as it will cast with the gold, producing pits in the cast.

Pure gold or gold alloyed with platinum or iridium, being free from oxid, usually casts clear and for fillings gives good results. At the present time for fine work such as inlays an alloy of 24 parts of pure gold and one part of platinum previously alloyed with 20 per cent of iridium is giving good results for inlays and seems to be of good resistance without being hard and is what is used for all inlays or bridge piers, though inlays for the latter if large and unsupported by a post are always made as a cavity lining only, filling them to the desired bulk later with clasp metal and solder.

Intermediates for bridge work are more accurate if cast separately, then assembled and soldered. Bridges of two or more piers should be made in sections and soldered together afterwards. Porcelain teeth for which pieces are to be cast shall be backed with either pure gold or platinum and the facings be either riveted or cemented after the final soldering. Long pin vulcanite cuspids can be used in making bridge intermediates by putting a square of gutta-percha over the pins while getting the impression and carving, afterward cementing them to place. Backs for long pin facings are cast using graphite pins to retain the pin holes during casting. Casting direct against porcelain teeth is admittedly impractical and it probably always will be because the difference in temperature of molten gold and an invested tooth is so great that fractures are sure to occur as a result of the shock and afterward from the shrinkage. The possibilities of casting against the facings is so alluring that all sorts of attempts have been made to succeed with it, but experience demonstrates that it is too risky to be practical; but as a result of these attempts we have many novel and pretty ways of casting for facings or loose-pin crowns for bridge intermediates and attachments for plates that obviate the necessity of taking this chance, making very durable and beautiful pieces.

Celluloid wherever possible can be used as matrix or bands with the knowledge that it will incinerate and leave a print that will cast clear. Its use is indicated in bands for roots wherein it is easily fitted and removed, saves time and obviates occasional soldering such as occurs when metal bands are used, and in the instance of the loose-pin crown with cast base the presence of the celluloid band supports the wax during the removal of the porcelain and pin, casting the base only, which is an advantage in fitting cast to the root and allows the use of a composition pin which is considered more serviceable than is one of platinum. Large proximal fillings if difficult can be neatly supported by using a celluloid band encircling the tooth and held snug with a tent. After the wax is in place, by the use of a hot instrument point it may be cut both labially and lingually, leaving that attached to the impression which will incinerate with the wax. This procedure facilitates making posterior bridge pier inlays of rigid metal.

Cast plates except as partials are not practical yet and even then there is a question that pertains more to the proper alloys to be used than whether it can be done or not.

The writer has not had sufficient experience in this class of work to make any definite suggestions as to the proper alloys for plates.

The idea of casting clasp metal with uniformity is found impractical because it partly loses its springy quality and so frequently assumes a crystallized condition that results are uncertain. When this crystallized condition occurs the addition of a small amount of pure gold may give a free casting rigid alloy again, but it is always uncertain and a fixed alloy of known karat is recommended. So far as I now know 22 karat gold alloys with platinum and iridium in the same proportions as pure gold and platinum for fillings proves best for partials, at any rate it casts clean and clear and seems to be about equal to clasp metal in stiffness, a little more iridium might be an advantage. Casting lower partial dentures using number 10 iridio platinum wire to connect from space to space and using loose-pin crowns for the teeth seems an ideal restoration. Cast the spaces separately and solder the connecting truss. Full dentures in cast gold would require a larger machine than we now have, but even then their practicability would be doubtful on account of waste; besides full dentures entirely of porcelain are coming.

A SYSTEM OF CLASSIFYING DENTAL LITERATURE AND ITS APPLICATION IN SOCIETY WORK AND DAILY PRACTICE.*

BY ARTHUR D. BLACK, B. S., M. D., D. D. S., CHICAGO.

Seventy-one years ago dentistry became a distinct organized profession by the founding of the Baltimore College of Dental Surgery, by the organization of the American Society of Dental Surgeons, and by the establishment of the *American Journal of Dental Science.* The year 1839 must always be looked upon as the most wonderful in the history of dentistry. The progress of the profession since that time has been remarkable. Each of us is very apt to consider only those years during which we have been in practice and to think of that period, no matter how long or how brief, as the time during which the greatest advancement has been made, while as a matter of fact, the written record, which must be the basis of future judgment, shows a continuous and steady progress during the past seventy-one years.

One can hardly think of the past without considering the future, and this leads your essayist to propound a question: What is the most important possibility in the future development of the dental profession? It is the belief of your essayist that the development to a greater degree of the habit of study and of writing will do more to advance dentistry in every possible way than will any other one thing that might be mentioned. The time was when each dentist developed for himself, within his own office, the dentistry which he practiced. Then came the period during which most that men learned, both of past and present, was by word of mouth from the older practitioners; a few men knew most of the important happenings which constituted the history of the profession, and they handed this history down as did the chiefs in our Indian tribes. We have now reached the time when our chiefs of the early days have all passed to the great beyond; there is none left of the men who founded the profession of dentistry. Those men, and the men who followed them, have left for us a good record of what they did; a record of the progress of our profession. How much do we appreciate what those who have gone before have done for us; how much do we know of the work of our predecessors; are we endeavoring to know the contents of a book by reading only the last chapter? What encouragement are we as a profession giving to our scientific men of today if they realize that the record of their work is to disappear soon after it is published?

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*Read before the Illinois State Dental Society, May, 1910.

Is it not our duty as members of this profession to seriously consider the question of improving our habits of study in order that we may be better dentists? We hear the constant call for men to do more work of scientific investigation, while at the same time the work that has been done is applied in practice by very few. There has appeared in our literature during the past fifteen or twenty years many well established facts in pathology which are not understood by the profession and will not be made the basis of treatment, as they should be, until the habit of study is developed to a better degree. Let me repeat the statement that the development of scientific data for the use of the profession has entirely outstripped the assimilation and application of these facts in practice.

The form in which most of the literature of dentistry has been published has contributed largely to this condition of affairs. It is the natural thing that most of our writings appear in monthly journals, and that little has been crystallized into books. It is proper that books should select and make permanent record of all the important items appearing in the journal literature, yet it is certainly a fact that there is much of value in our journals which has not appeared in book form, and this will doubtless be the case for many years to come.

On account of the number of journals published, their rapid accumulation, and the multiplicity of indexes, it soon becomes impossible for the man who has carefully preserved his jouranls to find an article to which he may desire to turn, or to find a group of articles on any subject in which he may be interested. For this reason most men have not kept their journals, because they were really of very little practical value. This fact is reflected in the journals themselves as published today, as shown by the frequent repetitions of the same ideas, it being quite evident that few writers are familiar with other articles on the same subject. We may truly say, therefore, that the condition of our literature has had much to do with the attitude of the profession towards it. It has become almost necessary that one read a dental journal as he reads the daily newspaper, and then casts it aside forever. This means that the reading is done without system, with little or no comparison of the thoughts of one man with those of others on the same subject, without the interest that the need of enlightenment for a particular case in hand would give to the reading.

It is the purpose of this paper to present a simple plan by which the articles in our journals may be systematically indexed and classified, so that a single paper, or a group of papers on any subject may be quickly and easily found when wanted; also to explain the work of the Dental Index Bureau, which has been organized for the purpose of doing this indexing and classifying for the entire dental profession so that any member or any society may have a small or a large dental library in which every article published will be readily accessible. The plan of indexing and classifying the articles will be presented first, then something will be said of the application of this system to our society work.

Twelve years ago the writer began the collection of a good dental library. This work had not progressed far when it was realized that several hundred bound volumes of our dental journals were almost valueless on account of the impracticability of attempting to find articles on particular subjects when wanted. Each yearly volume contains an index, usually with titles arranged alphabetically and without due regard to the placing of the important word first, making it necessary to look through almost the entire index of each volume for the articles on any subject. Such a proceedure, applied to many volumes, soon becomes too great a task to be practical, and such a library is therefore very nearly useless.

THE DEWEY DECIMAL CLASSIFICATION.

The writer undertook the rather formidable task of indexing a part at least of the journals on hand, and after studying the various library systems, the plan of the Dewey Decimal Classification was adopted. Stated very briefly, this plan is one in which a number is used to represent each subject, and no attention whatever is paid to the wording of the title. There is a definite relation of numbers, which gives each a meaning and makes it easy to remember them. In Dewey's Classification the entire field of knowledge is first divided into ten main classes, each of these into ten divisions, and each division into ten sections, making 1,000 sections in all.

The main classes are: 1, Philosophy; 2, Religion; 3, Sociology; 4, Philology; 5, Natural Science; 6, Useful Arts; 7, Fine Arts; 8, Literature; 9, History; 10, General Works. The sixth of these, Useful Arts, is numbered 600, and is divided as follows: 610, Medicine; 620, Engineering; 630, Agriculture; 640, Domestic Economy; 650, Communication, Commerce; 660, Chemical Technology; 670, Manufactures; 680, Mechanic Trades; 690, Building. Each of these divisions is again divided into ten sections; for example, 610, Medicine, is divided as follows; 611, Anatomy and Histology; 612, Physiology; 613, Hygiene; 614, Public Health; 615, Materia Medica and Therapeutics; 616, Pathology; 617, Surgery, including Dentistry; 618, Diseases of Women and Children; 619, Comparative Medicine.

Each of the original ten classes and each of the 100 divisions is similarly divided, each having its special number, and the relation of these numbers will be noted. Further divisions of each section are made by adding figures in the decimal positions and the subdivisions may be thus carried out indefinitely without changing the section numbers. For example, 611, Anatomy, is divided into 611.1, Circulatory System, 611.2, Respiratory System; 611.3, Digestive System; 611.4, Glandular and Lymphatic System, etc., etc.

In addition to this classification, which applies to all literature, there is an alphabetical index of titles, which enables one to find the number under which any desired subject is classified.

CLASSIFICATION FOR DENTISTRY.

It was necessary to construct a classification for Dentistry, as this subject had not been worked out. Dewey's number for Dentistry, 617.6, was used and subdivided as follows:

617.6 —DENTISTRY.
617.61—Dental Anatomy, Histology and Physiology.
617.62—Operative Dentistry.
617.63—Prosthetic Dentistry.
617.64—Orthopedic Dentistry.
617.65—Oral Hygiene.
617.66—Dental Pathology.
617.67—Oral Surgery.
617.68—Dental Jurisprudence and Ethics.

Since the number 617.6, representing Dentistry, is repeated in each of the above, and would also be in all subdivisions, the letter D was substituted for it, in order to simplify and shorten the numbers used; thus D1 represents Dental Anatomy, D2 Operative Dentistry, D3 Prosthetic Dentistry, etc. Each of these branches of Dentistry was then subdivided one or more times, as seemed necessary to properly classify the articles in our literature. The complete Dental Classification is published at the conclusion of this paper.

The full classification for Dentistry, as at present worked out, contains something more than a hundred headings, in addition to those for Materia Medica, etc., which are to be found in other subdivisions of Medicine. The index to the Dental classification contains about 600 items.

The use of the classification is as follows: The main headings are sufficient for books, while the subdivisions are used for chapters in books, journal articles and smaller items. A book on Operative Dentistry would be classified under D2, while a chapter on filling with gold would be placed under D221, pulp treatment D24, etc. Subdivisions have been or may be made so that any single subject or item may have its particular number under its proper heading; these subdivisions may be made again and again without in any way affecting the more important divisions containing fewer numerals.

The title of each book, essay or item to be classified is written on a card, together with the author's name; and for journal articles, the name of the journal, year, volume and page, together with other desirable data. In the upper left corner of the card is placed the classification number of the subject under which the article naturally belongs. The cards are arranged in accordance with the classification numbers, and we therefore have all the cards for each subject together in a separate group. If one desires to look up the articles that have been written on a particular subject, it is only necessary to know the number for that subject, which may be found by consulting the index, and to find the group of cards bearing the number. For example, all cards marked D221 would index articles on filling with gold, D222 on filling with amalgam, D65 alveolar abscess, etc. Another card is written for each article, with the author's name at the top. These are filed alphabetically, so that all of the writings of each author are grouped together.

The writer has a complete index for the first series of the *Amer-*

ican Journal of Dental Science, 1839 to 1850, *Dental News Letter* from 1847 to 1859, the *Dental Cosmos* from 1859 to date, and THE DENTAL REVIEW, from 1886 to date, also for the Transactions of Illinois State Dental Society, 1865 to date. Considerable indexing of other journals has been done by the Ohio State Dental Society and by the Postgraduate Course Committee of our Society; also a limited amount by several individuals. In all, about 50,000 cards have been written.

As a result of the presentation of this plan at the meeting of the Institute of Dental Pedagogics in December, 1908, there has been organized a Dental Index Bureau, for the purpose of indexing and classifying the articles in our current dental literature. This Bureau has recently issued an announcement in which it proposes to furnish to subscribers in printed form an annual classified index to all of the articles in all dental journals printed in the English language. This list includes about twenty journals published in the United States, two in Canada, three in England and one in Australia. This index will have two parts, the first being an author index, the second a subject index, and in addition to the annual edition, the type metal will be held and each fifth year, the five annual indexes will be combined, with the articles on each subject grouped for the full five years. The group of articles on each separate subject will be subdivided according to the various dental journals; for example, the list of articles on gold inlays will have all of the articles in the DENTAL REVIEW in one group, those in the *Cosmos* in another, those in the *Items of Interest* in another, etc., etc., yet all of these will be under the heading for gold inlays. The list of articles in each of the journals will be arranged in the exact chronological order in which they appear. The same plan will be followed in the arrangement of titles of articles on each other subject in the classification. It will thus be possible to find all of the articles that have appeared on any subject, or to select from the list those that may be found in any single journal or in several journals. The man who has in his library three or four journals will find under each subject separate lists of the articles in those journals without having to look over the lists for other journals; at the same time he has before him the lists for the other journals in which he may find something of special interest.

The advantages and possibilities of such a plan will be readily appreciated. Those who have access to such an index may turn at once to the list of articles on any subject in dentistry. This index makes it possible for one to select and read only those articles which he desires; no time is lost in hunting through indexes, no time is wasted in reviewing articles which do not pertain to the subject under consideration. The opportunity is offered to every man to do systematic reading of any subject. The value of such an index to the man who is preparing a paper or the discussion of a paper for a society will be recognized. A careful review of what has been previously written should be made in connection with the preparation of every paper, yet how few of the papers published in our journals do give anyone credit for previously expressed ideas. This is not due so much to the unwillingness of writers to give others proper credit as it is to the fact that the writings of others have been lost in the mass of literature and can not be located when desired. The general use of such an index should therefore have a decided influence on the character of our dental literature; it should tend to lessen the now too frequent repetitions and we should more often find instead references and credit to previously published articles.

Such an index makes it possible for one to make practical use of our literature in connection with cases that occur in daily practice. When an unusual case presents, the views of several or many authors may be quickly reviewed and ideas thus secured may be promptly applied. Without the index it would usually be impossible to locate the views of a number of writers without too much delay.

The Dental Index Bureau proposes to index the first of the journals of 1909, and it is hoped that the project will receive sufficient encouragement in the form of subscriptions to enable the Bureau to index much of the literature of the past, in addition to our current journals. On account of the excellent beginning which has been made in Illinois with the Postgraduate Study Course, we are in an exceptionally good position to take advantage of the work of this Index Bureau, since many of our members are already familiar with the system on which the work is done, and because many of the component societies have the nucleus for the building of good dental libraries. The Index Bureau will probably within a few years cover all of the journals that have been collected in our libraries all over the state and they will thus become of greater practical value in that it will be possible to find at any time articles on any desired subject.

We should, therefore, push more vigorously than heretofore the completion of all of the local libraries and each component society should arrange a definite plan for the yearly additions which should be made, and for the proper binding and the most convenient place to keep the journals. In several local societies, a number of members have each promised to donate to the library one journal, the society to pay for the binding. This is an excellnet plan, as it gives the subscribers the use of their journals during the year and enables the society to build up a good journal library for the cost of the binding.

In conclusion let me urge the vigorous prosecution of the Post-graduate Study Course as a part of the regular program of every meeting of every component society. It is the belief of many educators throughout the country that this is a more important work and will have a more far reaching effect than anything previously undertaken by a dental organization. It should have the effect of developing better methods of practice of developing men who think and write more logically, of improving the character of the literature of dentistry and of widening the knowledge of the members of the profession in everything connected with our work.

I should like to make one suggestion in connection with the future work of our society and its components; that we should determine upon and follow out a more systematic plan, which will insure a more definite and better distribution of knowledge relative to the more important facts that have been determined by our scientific men. I believe this can best be accomplished by having the Post-graduate Course Committee outline work to be followed by all of the component societies and to have a place in the meeting of the State Society.

The work outlined for a single year should take up and cover in the most thorough manner possible some single line, as for example, the Pathology of Dental Caries, the Pathology and Treatment of the Peridental Membrane, or any other subject. The committee should make out a schedule which could be followed by component societies which meet but once or twice a year, and other schedules for those societies which meet more frequently, in order that the members of each society may during that year get in the best possible manner the most prominent facts in connection with the subject under consideration. As many as possible of the men who are invited to give papers before local societies should devote their time to this subject and from every standpoint this subject should be given prominence over all others during that year. This does not mean that we should exclude other fields nor that we should devote our time entirely to the subject chosen for the year, but that we should select a particular subject and endeavor in the best possible way to place all of the known facts concerning that subject before every member of the society, and that as a climax to this work we should have at the meeting of the State Society a paper on the same subject. During each succeeding year some other subject could be handled in the same manner. Your essayist offers this suggestion for the improvement of the work of our society in the future.

CLASSIFICATION FOR DENTAL LITERATURE ON THE PLAN OF THE DEWEY DECIMAL CLASSIFICATION.

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NOTE—In this classification the letter "D" is substituted for the number "617.6," which is the number for Dentistry in the Dewey Classification.

D	DENTISTRY.	
D01	Philosophies.	
02	Compends.	
03	Dictionaries, cyclopedias.	
	031	Nomenclature.
04	Essays, addresses.	
	041	Correspondence.
05	Periodicals.	
06	Societies.	
	06a	Alphabetical list of societies, with index to proceedings as a whole. Papers, etc., read before societies, classified under proper subjects.
07	Education, professional. Relations of Dentistry to Medicine. (Dental examining boards, see D82.)	
	07a	Alphabetical list of dental colleges, with index to reports of commencements, graduates, etc.

        071 Methods of teaching. Technics. (For proceedings as a whole of teachers' societies, see D06.)
        072 Popular education. Dentistry in public schools.
        073 Literature. List of book reviews.
    08 Libraries, collections, museums, exhibits.
    09 Histories.

D1 DENTAL ANATOMY; HISTOLOGY AND PHYSIOLOGY.

        1a Force of Mastication. (Articulation and Occlusion of the teeth, occluding frames, etc., see **D3a.**)
        101 Comparative dental anatomy.
        102 Dental paleontology. Ancient races of man.
    11 Deciduous teeth. Absorption of roots of deciduous teeth.
    12 Permanent teeth. Temperaments in relation to the teeth.
    13 Anomalies, of both dentition and form. Supernumerary teeth. Temporary teeth retained. Missing teeth. Enamel drops.
    14 Tooth tissues. Preparation of specimens.
        141 Enamel.
        142 Dentin.
        143 Cementum.
        144 Pulp.
    15 Supporting tissues. Peridental membrane, periosteum, gingivae and gum tissues. Bone of jaw. Jaw bones as a whole.
    16 Dental embryology. (See also D14 and subdivisions of same.)
    17 Dentition. Diseases in connection with dentition and treatment.

D2 OPERATIVE DENTISTRY.

General articles covering both operative and prosthetic Dentistry.

    21 Instruments and appliances. (Instruments applicable to a particular procedure, classified with subject.)
        21a Sterilization of instruments. Asepsis.
        21b Control of flow of saliva. Rubber dam, clamps, etc.

22 Filling teeth. Filling materials. Filing. Separation. "The New Departure."
  - 22a Preparation of cavities.
  - 22b Matrices.
  - 22c Combination fillings.
  - 221 Gold.
  - 221a Mallets, pluggers, etc.
  - 222 Amalgam.
  - 223 Cement.
  - 224 Gutta percha.
  - 225 Tin.

23 Inlays. General articles on porcelain. (Porcelain ovens, etc., see D31.)

24 Pulp treatment. (Diseases of pulp, see D63. Electricity in pulp treatment, see 615.84. Deciduous teeth, see D602.)
  - 241 Capping pulps.
  - 242 Destruction and removal of pulps.
  - 243 Root filling. Root canals.

25 Prophylactic treatment of caries. Cleaning teeth.

26 Bleaching teeth. Discolorations. (Electricity for bleaching, see 615.84.)

D3 PROSTHETIC DENTISTRY.

General articles covering both operative and prosthetic dentistry, see D2.)
  - 3a Articulation and occlusion of the teeth, occluding frames, etc. (Force of mastication, see D1a.)

31 Tools, appliances, materials. Electric and other ovens. (Tools, etc., applicable to a particular procedure, classified with subject.)

32 Artificial dentures. (Temperaments in relation to the teeth, see D12.)
  - 32a Plaster of Paris. Impressions, bites.
  - 32b Artificial teeth swallowed.
  - 321 Vulcanized.
  - 322 Swaged. Dies.
  - 323 Fusible metal.

- 324 Porcelain. (General articles on porcelain, see D23.)
- 325 Celluloid.

33 Crowns and bridges.

- 331 Crowns.
- 332 Bridges.

34 Obturators and similar appliances.

38 Dental Chemistry.

39 Dental Metallurgy.

D4 ORTHOPEDIC DENTISTRY.

Facial expression in relation to the teeth. (Extraction of children's teeth, see D602. First permanent molars, see D 61a.)

- 4a X-Ray.

D5 ORAL HYGIENE.

D6 DENTAL PATHOLOGY AND TREATMENT. Diagnosis.

(Dental Materia Medica, see 615.)

- 6a Dental Bacteriology. (Articles applying to Bacteriology of a particular subject, classified with subject.)
- 601 Systemic conditions and the teeth. Pregnancy. Effects of drugs on the teeth. Tobacco, see also 613.84. (Diseases in connection with dentition, see D17. Foods and diet in relation to the teeth, see 613.8. Conditions of saliva in relation to the teeth, see 612,311. Gouty and Uric acid diathesis, etc., see D64.)
- 602 Children's teeth. (Absorption of roots of deciduous teeth, see D11. Diseases in connection with dentition, see D17.)

61 Diseases of enamel and dentin. Caries. (Filling teeth, filing teeth, separation of teeth, inlays and mechanical procedures in treatment of caries, see D22 and D23. Effects of foods, including sugars, on the teeth, see 613.2. Conditions of saliva in relation to caries, see 612.311.)

- 61a First permanent molars.

611 Sensitive dentin. (Electricity in treatment, see 615.84.)

612 Secondary dentin. Pulp nodules.

613 Abrasion.

614 Erosion. (Conditions of saliva in relation to erosion, see 612.311.)

615 Atrophy. Hypoplasia.

62 Diseases of Cementum. Excementosis. Absorptions. (Absorptions of roots of deciduous teeth, see D11.)

621 Excementosis.

622 Absorptions.

63 Diseases of dental pulp. Toothache. (Treatment, see D24. Pulp nodules, see D612.)

64 Diseases of peridental membrane. Gouty and uric acid diathesis, etc. (Replantation for cure of diseases of peridental membrane, see D73. Salivation, see 615.927.)

641 Calculus, deposits, stains, removal of deposits. (Calculi and diseases of salivary glands and ducts, see 616.31.)

65 Alveolar Abscess. (Replantation for cure of abscess, see D73.)

66 Diseases of soft tissues of the mouth. (Hemorrhage, see D721.)

661 Systemic diseases manifested in the mouth. Syphilis. (Systemic conditions and the teeth, see D601. Gouty and uric acid diathesis, etc., see D64.)

67 Dental and facial neuralgia and reflected pain. (Facial paralysis, see 616.842.) (Surgical treatment of same, see D77.)

671 Affections of eye and ear in relation to the teeth.

D7 Oral Surgery.

71 The maxillate. Reports of accident cases involving injuries of the face and jaws.

711 Necrosis.

- 712 Caries. (Articles on both necrosis and caries, see D711.)
- 713 Fractures.
- 714 Dislocations.
- 715 Fixations. Trismus, ankylosis, arthritis, etc. (Fixations on account of impacted third molars, see D74.)

72 Extraction. (Electricity in extraction, see 615.84. Local anesthetics, see 615.7816.)

- 721 Hemorrhages following extraction. Hemorrhage from soft tissues of mouth. (See also 617.41 arrest of hemorrhage.)

73 Replantation, transplantation, implantation.

74 Unerupted and Malposed teeth. Third molars. (Orthopedic treatment, see D4.)

75 Plastic operations.

- 751 Cleft palate and hare lip. (Obturators, artificial vela, etc., see D34.)

76 Sinuses of face, diseases and treatment. (Tumors of antrum, etc., see D78.)

77 Surgical treatment of dental and facial neuralgia. (Pathology and medical treatment, see D67.)

78 Tumors of mouth and face. Ranula, cysts, epulis.

- 781 Malignant.
- 782 Benign.
- 783 Cysts. Odontomes.
- 784 Aneurisms. Naevi.
- 785 Ranula.

D8 DENTAL JURISPRUDENCE AND ETHICS.

81 State Laws, laws of foreign countries.

82 State examining boards. (Proceedings as a whole of National Association of Dental Examiners, etc., see D06a.)

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84 Army and Navy dentists.

85 Dental protective associations.

89 Business methods.

- 891 Dental notation.

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AN INLAY ABUTMENT BRIDGE.*

BY SYDNEY J. KNOWLES, D. D. S., CHICAGO.

To many of you my paper may not carry any new thoughts, but I am sure enough may be interested to justify your essayist in presenting this subject.

When your president asked me to read a paper, I felt very much flattered to have the honor of reading the first paper before this newly organized Component Dental Society. The first thought that occurred to me before writing a paper, was to try and present something of a practical nature which might serve as an inspiration to more of the younger men of the profession, who have never read a paper before a dental society, to accept an opportunity to do so when asked, for my understanding of this newly formed component society is to interest more of the younger men.

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*Read before the North Shore Auxiliary of the Chicago-Odontographic Society.

My paper tonight is to deal with a practical case requiring a bridge. A patient is presented with the two upper right bicuspids missing, and a perfectly sound cuspid and first molar in place. There are several points to be considered in order to properly supply the missing teeth.

First. To do the work with a minimum of pain.

Second. To make a strong, substantial and permanent fixture.

Third. To have a minimum of gold showing.

I believe to accomplish this work with a minimum of pain and to make a strong and permanent fixture, requires the removal of the pulp from the cuspid, and possibly from the first molar. To remove the pulp from a sound cuspid with a minimum of pain, until recently, was a somewhat difficult and uncertain operation, for until we had cocaine given to us with a satisfactory technique, we resorted to arsenic. To apply arsenic it was necessary to cut a fairly deep cavity or pit into the dentin as near to an exposure as possible, usually attended with considerable pain, and with somewhat uncertain results. In a majority of these cases of perfectly sound teeth, by using a round bur, number one-half, it is possible to cut a cavity or pit into the dentin to a depth of about one-sixteenth of an inch with practically no sensation of pain. After cutting this pit into the dentin, I use either the Sapp or Weaver high pressure cocaine obtunding syringe filled with a solution of neurocaine, made by dissolving three one-eighth grain pellets in three or four drops of distilled water. After filling the syringe barrel with the cocaine solution, the point of the syringe is fitted into the small opening in the tooth and held firmly in place to prevent leakage of cocaine. By slowly exerting pressure on the plunger, it is possible to force the cocaine through the dentin with very little pain, so as to completely anesthetize the pulp, when the pulp cavity may be opened into without further pain and the pulp removed in any way you may wish. If there is no after hemorrhage, I usually fill the root canal at once. The small pit in the dentin is originally made at the distal of cuspid near the gingival margin, so it may be included in the cavity, which is made at this time to be used as the support for a posted gold inlay abutment. I prepare this cavity so it will not extend enough to be seen labially, cutting principally on the lingual and distal surfaces with a slight enlargement to create a dovetailed effect. The root canal is reamed out enough to allow for a number sixteen gauge tapered square iridio-platinum wire of good length. The post is fitted to the canal and the cavity having been prepared with no undercuts is ready to allow a piece of warmed inlay wax, with the platinum pin fastened in the wax, to be forced into the cavity. The wax is then chilled and trimmed to the cavity margins, when it may be removed and cast in the usual manner. It is advisable to roughen the pin slightly so it may be held with certainty in the wax. My experience with this kind of an inlay abutment has been very satisfactory and covers a period of several years. The dovetailing of the cavity protects the teeth from splitting, and the post insures adequate support and attachment. An inlay abutment of this kind is one that shows no metal, and the gingival line of the tooth is in no way interfered with; a condition certainly to be desired, as most of the banded crowns are usually objectionable. An inlay abutment requires a minimum of cutting and is usually adequate anchorage. The loss of pulp in a case of this kind, is to my mind, not objectionable, for I have seen very little discoloration of teeth where the pulp has been removed with cocaine, and the tooth kept sealed. The molar may be treated in the same manner as the cuspid, although in many cases I find it possible to obtain sufficient anchorage for an inlay abutment without a post and the removal of the pulp. Very often, as you all know, in cases requiring the restoration of teeth, you will find the patients have reached an age where the pulps have receded sufficiently to allow the preparation of a deep perpendicular walled cavity. By a slight widening at the mesial pit in a molar, it is possible to securely anchor the abutment. When the inlays have been cast and fitted to the cavities with proper contour and occlusion, the next step is to obtain a good wax bite and a plaster impression. The inlays may be roughened so as to facilitate getting them back in the proper place in the impression. The plaster impression ought to be poured with a good strong smooth investment instead of plaster, which will prevent any possibility of the abutment being misplaced in the waxing and investing for the final soldering.

I believe a bridge made along such lines as I have stated to be a more humane, esthetic, permanent and satisfactory way of restoring lost teeth than any way I know of, and certainly a great improvement over the old banded shell, slipper or boot crown abutments.

THE AMERICAN DENTAL SOCIETY OF EUROPE, THIRTY-SEVENTH ANNUAL MEETING AT PARIS, MARCH 25-28, 1910.

DISCUSSION OF THE PAPER BY DR. CUNNINGHAM ON "THE IDEAL REALIZED, A DENTAL INSTITUTE WITHOUT FORCEPS.

Dr. Brunton (Leeds):

Said that Dr. Jenkins, who had been obliged to leave, had asked him to state that he had visited Dr. Cunningham's experimental clinic in Cambridge and that he believed Dr. Cunningham had begun at the right end in getting the children and neglecting the older people. Dr. Jenkins also believed that the conditions of success would be very much furthered by more female dentists who could attend to the children. He believed that the woman dentist could do more for children than the man dentist inasmuch as she was not so keen on running a practice, and was more sympathetic and so on.

Dr. Kirk Davenport (London):

Said he had no experience of the Institution Dr. Cunningham had spoken of but there was one point it seemed to him all would agree with, namely, the instructing of parents in the bringing up of young children. That was one of the things the Americans in Europe had been particularly unfortunate in. They were consulted by people on their own behalf when they had reached understanding, rather than on behalf of their children. For some reason or other American practice was in the main very low in the number of children treated. The ease with which children could be treated was very great, once the confidence of the child had been obtained, but later on there was great difficulty in getting control over the child. In his own practice he always took a pleasure in treating children and he filled teeth from the ages of three to seven with comfort, but after seven—from the ages of seven to twelve—there was for some reason or other some difficulty in performing operations on teeth which would be easily performed at five years of age. His own practice was never to deceive a child and at the first sitting or two only to do what the child was prepared to stand. By that method the children came back and did not mind being operated upon. They came two or three together, and were given picture books and Teddy bears and toys while he was working, and they came back every three months or so without the least dread.

DR. GEORGE FAY (Brussels):

Said Dr. Cunningham thought there were not enough dentists to go round but that problem could be solved by the help of school teachers. One difficulty was that school teachers themselves knew nothing about it in many cases and therefore the first thing was to educate the teacher. That could be done by getting the authorities, local councils, and so on, to prevail upon the school teachers to attend lectures given by dentists, and then to insist on the cleansing and care of the teeth and the necessity of saving them. There was a great movement now going on whereby young ladies learnt the profession of nursing, but they knew very little about dentistry, and that was another direction which might be utilized. The remarks Dr. Cunningham had made about tooth brush drill were important. In the primary schools of Germany there was now compulsory examination of the teeth for all children and a movement of the same kind was now being made in Brussels. Nothing, however, could be done until the children were got hold of. Their confidenec had to be gained, and as Dr. Davenport had said that could be only gained when they were young.

DR. BRUNTON (Leeds, England):

Said it would be extremely interesting and instructive if some practitioner in Paris could give some information as to what was being done in Paris on the lines of Dr. Cunningham's work in Cambridge. In connection with dental aid he thought it would be possible to have what they had in the medical profession, a system of first aid. He agreed with the last speaker that instruction should be given to teachers and nurses and that instruction might be one of the directions in which first aid would be very valuable.

DR. W. S. DAVENPORT:

Said he had had an opportunity of discussing Dr. Cunningham's work at a former meeting of the Society and at that time he was able to give some experiences Dr. Hayes and he had had in the clinic they had been carrying on for some years. That clinic was absolutely of a private nature and it had been interesting to see how much could be accomplished by a few hours' work a week in the care of children's teeth. The Institution had several hundred children who had never seen a toothbrush and probably never heard of a dentist, but now, after five or six years' work, there was no such thing as a toothache known in the Institution or in connection with the Fresh Air work of that Institution, while some years ago the suffering was absolutely terrible. Out of the hundred or more children at that time who were taken into the country, every night some of them always had the toothache. Dr. Hayes and himself by giving very little time had been able to put the children's teeth into such perfect condition that there was almost no trouble at all now. He quite agreed with Dr. Cunningham that it was absolutely essential to educate the mothers and those taking care of children, such as teachers, as to the value and importance of dental care; otherwise it was absolutely impossible for the dentist to accomplish anything for that class of people. Dr. Cunningham's method of quieting the children seemed to be somewhat extravagant—giving a penny to each child.

Dr. Cunningham:

Said that was only in cases of extraction.

Dr. Davenport:

Said in his practice they only gave a very small piece of chocolate and the children returned time after time for examination when there was absolutely nothing wrong. There was a great work to be done and it went without the saying that there were not enough to do it. There were, however, a few willing to give the time. He had not cared to have anything to do with public institutions owing to the red tape difficulties, but the dental profession must interest themselves in private charitable institutions and do all they possibly could for the rising generation who were being educated there.

Dr. E. C. Kirk (Philadelphia):

Said a few years ago Prof. Osler gave an address to what was called in America the Graduating Class of the Royal Dental Hospital, Leicester Square, and amongst the principal points he brought out, as far as he could remember, was the following: That one of the functions of the dental practitioner was that of an educator, a propagandist of the importance of taking care of the teeth. He happened to be in New York at the time the report of that address came out and he found that one of the New York daily papers had devoted a column or more of appreciative editorial comment to the statement. The *British Medical Journal*, or *Lancet*, possibly both, republished the address almost in full, and the principal dental journals of England reproduced it. It was not the address itself but the fact that it had been so largely republished, and the fact that an American paper was willing to step aside for a moment from the discussion of trusts and Theodore Roosevelt and subjects of that sort to write a long editorial on the important address that had been made by the Regius Professor of Medicine of Oxford University. He thought he had diagnosed in that address one of those things that their friend Eugene Talbot of Chicago had designated as a swan song, one of the things that Falstaff said had "an ancient and fish-like smell"; it was the story that dentistry had been talking about ever since there had been dentistry. Every dentist had been shouting and whispering and singing and cooing into the ears of the public ever since dentistry had been known, but when the Regius Professor of Medicine of Oxford University said the same thing everybody sat up and took notice. Therefore he was compelled under the emotion of that experience to write a little editorial entitled "Concerning a Mouthpiece." Whether it was because of that address or because the time was ripe he did not know, but at any rate it seemed that the psychological moment had arrived. In fact the psychological moment had arrived when the public was willing to lend an ear to the story of dental prophylaxis and the story of the relationship of oral diseases to the general bodily health. He was astounded at—in fact he was almost nervous about—the rapid mushroom growth, the exuberant growth, of that interest and activity, especially in the land of the alleged brave and the home of the so-called free. He had been watching with no little anxiety because he was afraid that in its excessive activity it might tend to run off the track somewhat. However, it was an encouraging thing in one respect, and he wanted to bring out the idea that had been touched upon by several of the speakers, that it was no longer a difficult matter to catch the ear of the public, of school boards, municipal authorities, school teachers, and school superintendents on the question. He was himself invited by a group of colleagues near Philadelphia to address a Teachers' Institute where there were some four hundred or five hundred people, all living within an hour's run from Philadelphia, and he prepared a brief popular address on the importance of the matter and showed some lantern slides. Since then he had been overwhelmed with requests to repeat his lecture and give further instructions. The people in that district had adopted toothbrush drills and examination of teeth in schools in the section to which that group of teachers belonged. Therefore the demand was an excessive one. The work was going on in New York where there was a National Committee at work. In the middle of March they were preparing to launch a tremendous movement in Cleveland, Ohio, where four separate Municipal Dental Clinics had been established and were in active operation in the city. There need be no longer any doubt about the receptivity, so far as America was concerned, of the people with reference to education on dental matters. If he had properly understood Prof. Osler he was right when he said that there were not enough dentists to go round, meaning not enough to take care of the work which was enlarging very rapidly. Another essential point brought out by Dr. Cunningham was that every dental operation must be regarded as a series of compromises with diseased conditions, and it was the business of dentists always to capitulate with dental diseases upon the terms of the greatest advantage to the patient. With that principle applied to the work ideal things could not be done. Extensive gold operations for the poor were impossible. He upheld Dr. Cunningham that dentists must do the best possible under the circumstances and not regard their work as ideal, knowing that whatever they did was infinitely better than doing nothing at all. It so happened that in the University of Pennsylvania the doctor, who was connected with the Psychological Department, had been studying the causes of defective intellect in school children and had gathered together an enormous amount of statistical matter showing the percentage of backward children in the public schools of the city. He had shown the number that were repeating the year's work in a given grade and he had demonstrated that much of that intellectual backwardness was directly traceable to physical defects, and amongst the group of physical defects to none so much as those arising from defective teeth. He had gone still further—and he quoted this as an argument for presenting to municipal authorities—he stated that it cost infinitely more to retain the child for an extra year in a low grade than it cost to put the teeth and mouth in condition so that its mentality would arise to a point where he could go on with his school work. It was costing the state infinitely more to maintain the children in the lower grade than it would cost to take care of their physical defects and put them in a condition to go on. That would be a most influential argument in convincing town councils and municipal authorities to expend money on dental aid. The phychologist had now absorbed the idea and had definitely in mind that mal-occlusions of teeth were a cause of backwardness and a large number of cases had been referred to the dental clinics for correction. So clearly was the thought fixed in the mind of the psychologist that certain types of mal-occlusion which were not of sufficient importance to be the cause of mental backwardness were referred to the clinic with the request that the peculiarity should be corrected, when certain other conditions which were really the important factor had been overlooked. For example, a case would be referred to the dental clinic for the correction of a mal-occlusion and on looking into the mouth it would be found to be in a filthy condition, and the general physical appearance of the child demonstrated at the first glance that it was a case of toxemia from a filthy mouth. The child's mouth was cleaned and in the report he asked, "Why strain at the gnat and swallow the camel? We are cleaning this child's mouth that is all we shall do, and you can watch him grow." The child's digestion improved at once and he was restored to robust health simply by being taught to keep his mouth clean. Those were the places where dentists had to help medical men and those connected with educational work.

Dr. George Cunningham:

In reply said he had had the same experience as Dr. Kirk in convincing the municipality. It required an absolute demonstration, and all parties, conservatives, liberals, radicals and the Ratepayers' Association, for the first time in their lives unanimously carried a motion. With regard to there not being enough dentists to go around, he had a pamphlet on "Teeth and Tuberculosis," in which Dr. Kerr said the great success of the clinic was due to the painless nature of the work done and the fact that the children did not come to be cured of pain. Dr. Kerr emphasized the value of the curative work and said: "If you can only get hold of the children early enough, before serious decay has set in you are going to save all their teeth." When asked his opinion of the work of the Cambridge Institution as compared with what he had seen in Germany, Dr. Kerr said: "It is extraordinarily satisfactory. It means a lot of health. It is a long way ahead of what they are doing in Germany. The aim is to keep the children healthy and to preserve their teeth, and never extract them if it can possibly be avoided. It wants rubbing into the man in the street pretty well—he will appreciate it later on—that if you preserve the teeth you preserve the nutrition and health of the body." It was no good, however, applying German rules to Great Britain, where practice had to be carried out under voluntary conditions. The first brick wall against which he knocked his head was the Board of Education, who had passed a bill, a one-clause bill, with reference to getting money from the parents towards the cost of the whole thing. In Cambridge the authorities were against that, but the Board of Education would compel them to do something in that direction The great point about the Cambridge Institute was not only instruction to the parents themselves and to the children, but it was instruction in dental matters to the whole population in Cambridge. Even children in the higher grade schools became anxious to know how to get their teeth treated. The medical profession were endeavoring to get the control of public dental work into their hands, but he was of opinion that the work could only be done by dentists and supervised by dental officers.

DISCUSSION OF THE PAPER BY DR. C. F. BÖDECKER ON "MICROPHOTOGRAPHY IN NATURAL COLORS."

DR. H. W. C. BÖEDECKER (Berlin):

Said the paper was a very painstaking one. but not very easily discussed, as it was simply an exposition of a process of making slides for demonstration. He might call attention, however, to a few of the things directly connected with the process of three-color work. It would be noticed that in comparison with the black and white positives exhibited there was a certain lack of brilliance. That was due to the fact that the whites were not whites at all; there were three colors shown in every place and what was thought to be white was a series of minute points of red, green and blue light reflecting back to the eye the impression of white. The old three-color process was somewhat different; in the whites there was no color whatever. In that case a white light successively passed thorugh different colored filters, and to obtain white light the light was allowed to pass through a clear glass plate. With the synthetic process beautiful whites could be obtained, but it was impossible to get any neutral tints because the color could be only produced by superimposing three different colors, and as soon as three primary colors were superimposed the result was not quite correct because primary color pigments could not be produced; they could be only made by breaking up the light and could be only found in the spectrum. The ideal demonstration for microscopical specimens would be the direct specimen slide with the stained specimen upon the screen, but that was not practicable. It was possible to get an apparatus to show to twelve or fifteen people a perfect picture about a yard square, but even in that case it was very tedious work, more time being taken up in changing the slides and finding the field than would be allowed for an ordinary lecture. Also the light would have to be very strong and the filters and the focus would have to be changed occasionally, and if inadvertently the focus of a very strong light fell upon the specimen it would be broiled and disappear in less than a second. The cost of such an apparatus also would be very high. In projecting a diapositive on a screen it would need a good deal of enlargement. The enlargement of a 9x12 cm. diapositive was equal to thirty lineal enlargements. To try and put the original slide at that point would mean enlarging to between 3,000 and 6,000 times and any movement in the room would be immediately communicated to the apparatus. Theoretically, microphotography in natural colors was of undoubted value, but the amount of work connected with the production of such diapositives would prevent the process being adopted as a common means of teaching or demonstrating.

DISCUSSION OF THE PAPER BY DR. YOUNGER ON "THE SUPERIORITY OF SILK LIGATURES OVER OTHER APPLIANCES IN REGULATING TEETH."

DR. R. ANEMA, (Paris):

It was with interest that I listened to the paper read by Dr. Younger. On more than one occasion I had an opportunity of seeing the Doctor tie his silk ligatures, and I could not help admitting the talent he showed in the way in which he moved individual teeth, using nothing else but ligatures. Once I had the opportunity of seeing how it was possible for him to expand an arch.

However, it seems to me there are limitations to his method in the practice of orthodontia, and when the Doctor claims "a superiority of ligatures over every other appliance in regulating teeth," I must ask him to allow the suggestion that his claim is perhaps somewhat exaggerated. For instance, how would the Doctor correct, as is necessary in all second and third class cases (Angle classification), the abnormal mesio-distal relation of the lower arch? Or in a case of Class 1, when it is necessary to bring forward "en masse" upper and lower teeth in front of the first molars, how would he act? To explain myself I will show on the screen a case known as the Abram case. (See Dr. Angle's book, "Malocclusion of the Teeth," Fig. 421-425.) Here it was necessary to bring forward in the upper and lower jaw all the incisors, cuspids and premolars in order to regain the place lost by the extraction of the first molars.

In the following case, a typical second class case (see Dr. Angle's book, "Malocclusion of the Teeth"), it was necessary to bring forward both sides of the lower jaw in order to put the teeth into their normal mesio-distal position. The pictures of the facial lines, before and after treatment, show how necessary this procedure was. The question as to how Dr. Younger would correct, without other aid than silk ligatures, such abnormal conditions, seems to be admissible, and is one to which I shall be glad to receive an answer.

Dr. I. B. Davenport (Paris):

Said the first regulation of teeth he ever saw done was by the use of strings, and he had always employed them in special cases in his own practice. Dr. Moffatt, with whom he had the good fortune to be associated for several months soon after coming to Europe, was very skillful in the use of strings for regulation of simple cases, and used what he called Japanese grass line, really fishing line. Not long after that he himself conceived the idea of employing that material for the wedging of teeth, a method he had had the pleasure of seeing recognized as the most humane and effectual system of wedging teeth in the majority of cases. He adopted the fine fishing line finally for most of his string regulations, but as it was not always easy to pass between the teeth owing to its thickness and hardness other methods were often selected where strings properly applied might have done better. When he saw Dr. Younger make use of fine threads for the purpose of regulating teeth it was a revelation to him; he could hardly believe that such fine silk threads could possess such power. The method of applying them was equally extraordinary, and he had the deepest admiration for the patience and skill exhibited by Dr. Younger in their use. That admiration became greater when, after being supplied by Dr. Younger with all the necessary sizes of threads he tried to apply them and often found, after a nervous half hour, that he had only succeeded either in getting the strings wet too soon or in breaking the main attachment in making the last knot. After applying strings to quite a number of teeth he often had a decidedly red face and high temperature. When the patient came back without an appointment with the innocent request that he should see them for a minute to tie one of the little strings that had somehow broken, he felt a chill running down his back, knowing that other patients would need to wait a considerable time beyond their appointed hour. To regulate teeth as Dr. Younger did by using fine threads in cases at all complicated was about the most difficult thing an orthodontist could attempt, and yet because of his requisite patience and skill he had acquired such a facility that he really believed his method to be most easy and simple. A year ago he himself regulated a number of teeth for a patient about fifty years of age by the use of threads, with no inconvenience to the patient, who certainly would never have had anything done with any other form of appliance. He was not a believer in any one method of procedure. All methods had their places and no school of orthodontia would live very long which did not recognize the advantages possessed by different methods when applied to particular cases or under particular circumstances. The string method, as employed by Dr. Younger, had a wide application, particularly in adult practice and especially in the amelioration of broken arches past the possibility of perfect restoration, and to tooth deviation resulting from pyorrhea. One so skilled as Dr. Younger naturally might undertake cases which another might treat to produce the same results by a different method.

DR. F. AGUILAR (Madrid):

Said some time ago he had the privilege of examining in Dr. Younger's office some of the cases he had treated and Dr. Younger gave him a collection of his silks and he had used them in several cases with great success. Recently he had seen a case of a lady, certainly not a young one, who had been treated by Dr. Younger, and in the course of five or six weeks the teeth, which were in very bad condition as regards position, were put into a perfect condition. He had seen the lady recently with the retaining apparatus in position, an apparatus consisting of silk ligatures, and the result was perfect. The case which Dr. Younger termed his miraculous case could not be attributed to the action of the ligatures, but to the surgical treatment. The ligatures covered with a solution of celluloid gave excellent results as retaining appliances. A dentist in Spain had worn a retaining appliance for eight or nine months made with silks covered with a solution of celluloid, and the result had been excellent. He did not know whether the same results could be obtained by everybody, but certainly when the appliances were manipulated with Dr. Younger's ability the results were all that could be desired.

Dr. A. L. Hipwell (Paris):

Said he had had personal experience with Dr. Younger's method, having had an irregularity which several of the best American dentists said it would be impossible almost to do anything with. When he came to Paris five years ago Dr. Younger kindly operated upon him and produced a very good result.

ILLINOIS STATE DENTAL SOCIETY, FORTY-SIXTH ANNUAL MEETING, HELD AT SPRINGFIELD, MAY 17-20, 1910.

DISCUSSION OF DR. THOMPSON'S PAPER, "EXPERIENCES WITH CAST METAL."

Dr. W. T. Reeves, (Chicago):

In opening the discussion I feel out of place, because I believe that the one who opens the discussion of a paper should be antagonistic to the subject matter, for in that way you get two view-points of the subject. My experience has been confined entirely to the casting of prosthetic work, partial plates, bridges, fixed and removable crowns, etc., and I claim no original thought for myself. I have been careful to follow the technique of the one who introduced the method to us, he having overcome and solved a great many of the problems for us, and if there is any one thought that I might leave with you in opening this discussion it would be this, that in taking up any new work, if you will be careful to follow the technique given to you by the one who introduces it, you will meet with much more success than otherwise.

Dr. Thompson has given us a paper that is a classic in its simplicity and practicability.

I have gradually worked down until finally I am casting with three to four pounds pressure, simply enough to give me my nitrous oxid flame for melting. I hold my left hand on the lever to close the mold when my gold is ready to cast, and as I close it reach over and turn the lever that controls the pressure, up to fifteen or twenty pounds. There is an interval of somewhere in the neighborhood of three seconds between the closing of the flask and the turning on of more pressure. In that way I feel that I get the gold into the mold without distorting it, and then I have the pressure back of that to hold the gold in place.

Dr. E. M. S. Fernandez (Chicago).

It has given me great pleasure to read Dr. Thompson's very instructive paper, but I regret very much to have received it so near the time of the meeting, as being given such a limited time, I was unable to do justice to myself, to the paper or to the society. For this reason I am obliged to give merely a few facts, recalling a few manipulations, materials and processes which have given me the best results in the process of casting metals.

One of the minorities which has aided me in getting good castings, was to cut a few circular grooves and two cross-wise grooves on the metallic base which holds the flask while casting. This base, prepared in that way, allows a free exit of the air, thereby allowing the castings to fill the mold completely. Another important feature in this exit of air from the surrounding mold is to have two mixtures of investment. The first mixture of investment that surrounds the inlay should contain very fine silex, and the second mixture, which is to surround the first investment and fill the greater part of the flask, should contain coarser silex. The plaster, which is to some extent destroyed in the burning of the mold, will allow minute crevices which also permit the air to escape.

I beg to differ with the essayist in regard to the body of investment under the casting, which I believe he claims should be thin. If the second investment is of a coarser material, I prefer a pretty fair thickness of same.

In proximal cavities for inlay work, I believe it imperative to use matrices. The wax should not be too soft nor too warm when ready to be pressed into the cavity, and the point of the wax which is to go into the cavity first should be slightly softer than the upper part, thereby allowing itself to be pressed firmly against the walls of the cavity and give good adaptations to the margins.

The size of sprue should correspond to the size of the casting—the smaller the casting, the smaller the sprue—and in very small castings I have had very satisfactory results by using an ordinary heavy pin as a sprue, but of course shorter in length. The thinner the sprue, the shorter in proportion.

Overheating of the mold must be avoided and a generous amount of gold should be used in order that the metal remain melted long enough to allow itself to be pressed into place before congealing.

I also agree with the essayist in regard to the ordinary gas blowpipe being preferable to the oxy-hydrogen blow-pipe for gold casting.

In regard to the karat of gold to be used for the different classes of cast work, I beg to be permitted to say, that for inlays of 22 karat gold, and for crowns and bridge work, 22 karat gold with the addition of 1/6 22 karat gold solder has given me the most satisfactory results.

Dr. W. B. Tym (Charleston):

What has been said upon this subject seems completely to cover the field, so far as our experience goes. Therefore it is not necessary or prudent for me enter into a detailed discussion.

There are a few points on which I wish to deviate from what the author has said. In obtaining the wax impression it is well to first look to the cavity preparation; without a properly prepared cavity it is impossible to obtain a well fitting inlay with any of the materials mentioned or machines in use.

After having prepared the cavity along the well founded lines so that the wax impression may be removed freely, the taking of the impression may be simplified by starting with harder wax, and after having forced this as far as possible, if you have not the desired results, with a spatula, drop a small quantity of soft wax at the point where the impression is imperfect, the hard wax acting as a piston will force the softer wax into the desired position, thus giving an accurate impression.

The question as to size and length of the sprue should be governed entirely by the kind of machine used. The air, steam and centrifugal machines necessitate shorter sprues than do the vacuum machines. In the use of the vacuum machine, the sprue should be long enough to place the wax model to be reproduced in gold nearer the base of the casting ring, as the suction produced will relieve cavity of all air present, and if the metal is sufficiently heated it will be instantly drawn to place.

As has been said, the air, steam and centrifugal machines depend entirely upon the momentum of the molten metal to expel the air present in the mold. The sprue should be shorter, as the greater the distance traveled the slower the movement of the gold. This, with the force required to expel the air, and congealing of the gold, oftentimes cause imperfect casts.

In the use of a large sprue the casting force must be applied the instant the flame is removed, because the gold has a tendency to fall into the sprue tract and may congeal sufficiently to cause the transfer from the crucible to the mold to become sluggish, resulting in a failure of definite outlines in the cast.

This portion of the subject, however, has been well treated by the essayist. The idea of using a cylindrical sprue to encase the small brass wire for small work is very clever indeed.

As for investment materials and their manipulation, I have little to say other than that I have tried several of the so-called perfect materials. Some, in my hands, gave good results, others were perfect, all right, but I have never been able to conscientiously go to Sunday School since I tried to use them, and like a great many others I now get the different materials, and make the investment so that I can use it with a considerable degree of satisfaction.

I can heartily endorse the author's statements in regard to bench scrap and gold of unknown karat, for no clear casts can be made from gold that is far from pure.

DR. E. R. CARPENTER (Chicago):

It is my pleasure to thank Dr. Thompson for the presentation of this beautiful paper. There is one point where we would differ with regard to the taking of impressions. I originally took my impression in the same way Dr. Thompson speaks of, with a matrix, and it then became a personal equation with the operator. I found I could take my impression without a matrix in less time, and more accurately, and so naturally that is the course for me to pursue. I will give a short resume of my method. In the first place, in driving the wax home I hold it lingually-bucally a few minutes to keep it tight in the space, thereby forcing it lower down cervically, to get a good excess there; then the occlusion, of course, by biting and grinding on the wax. Then the excess is cut away lingually-bucally, and smoothed over with smooth spatulas or burnishers, whichever you prefer, and then I take a thin steel polishing strip and slide down through proximally, and cut out not all but part of the excess. Then you can take a very thin twilled silk tape, so thin that it will follow down the little space in which you put your polishing strip. That should be wide enough to cover the proximo-occlusal corner or angle, and in doing so comes up over. That should be lubricated, according to Dr. Taggart's last discovery, with *vegetable* oil. The inlay is drawn down and polished, then a sprue inserted near the proximo-occlusal angle, and chilled thoroughly. With a pair of light pliers, grasping the sprue easily, the wax can be taken out of the cavity. I gain two or three advantages by doing it in this way. After the inlay is cast the sprue is cut off half way between the button and attachment of the inlay, and the spud is left there so that you can handle the inlay with your pliers. I think a great many accidents, especially in early work, have been caused from the lack of use of magnifying glasses, with which you see some of the minute peculiarities. After you have driven the inlay to place you can polish over the different margins and angles, and then take the inlay to the laboratory in a pair of flat-nosed pliers, and put it on a buffing wheel. You do not have to touch the inlay after that.

There is one point I neglected to mention, and that is that after you have cut down and separated by the steel strip and polished with the oiled tape, afterwards you must replace some of the wax. If you want to fill out any contact point that has worn off, you can add that much extra.

Dr. J. N. Crouse (Chicago):

There is one instrument that does not seem to have been spoken of here. It is a sprue holder and syringe combined so that you warm your sprue and attach it, and then throw cold water on it and chill it. It is a neat device somebody brought into our place, and we are making it for them.

Dr. G. W. Dittmar (Chicago):

A number of important points in this excellent paper, I fear, have been overlooked. A thing that I never thought of in making a casting was the rush of over-heated gold down into the cavity that might have a number of fine elevations or sharp angles on the inside. This extra hot gold rushing down onto these fine points is very apt, not only to break them off, but burn them off, and for that reason you frequently have some trouble in getting your inlays properly seated. This is partially the cause at times which prevents the proper seating of porcelain teeth on cast bridge work, or facings on cast backings. It is difficult to get perfectly smooth castings. The majority of my castings are rough, and need some polishing. I found out long ago, and mentioned it to some of my friends, that when I got a smooth casting I felt it was the result of not having my gold overheated. I got a little reckless, and instead of getting the gold hot enough I pulled the lever too quickly, and consequently did not get a sharp casting. In order to make sure of getting sharp castings, I often overheated the metal some. They cast sharp, but rough. Now, if it were possible to control the heat you would get a more perfect casting as a consequence.

Dr. Thompson gave us some new thoughts regarding alloys. Platinum and gold I have used in combination, but I have never thought of using iridio-platinum with pure gold.

I was very much pleased with Dr. Thompson's paper. It had a number of original ideas, and I want to thank him for this presentation.

Dr. Thompson (closing the discussion):

What I have to say will be very little. I am certain that there is as much damage done by gold above the fusing point as any other thing that we do. The proof of that is this: I have been in the habit of investing fillings in the center of the top, or on the contact point at one end, and when I invested on the occlusal surface I nearly always spoiled the fit by rocking of the piece in the center. When I invested at the contact point I had less of it, although it was not entirely eradicated. Then I thought, because some of the teeth were pulpless, that I would invest on the under side. I have never failed to get a fit in that direction. The pressure we have been using is far in excess of anything that is necessary, and I have been casting away down below five pounds, and the result has been good. The main advantage, after we have got the gold the proper heat, is to have the cavity heated as short a time, and as low a heat as possible, because every degree of heat causes a little more expansion, and shakes off pieces that create part of this roughness. If it is hollowed on the bottom and top it will heat very quickly under the blow pipe, and the main point, I think, is to keep the air pressure down. Then you have no fear of bulging or crushing these investments that are so soft as soon as they are heated hot. Now the necessity for a smooth cast is apparent to all, and the smoothness of the cast depends on the fineness of the substance against which the gold goes, and it is my belief that if we could paint that with some substance that would be very fine, and as the wax disappears cement the parts together, and then cover it with something coarse and open, we would have very little resistance to the air, and could make the cast with low pressure. I figure that the nearer we can get the mold to the bottom the less air resistance there will be, and the nearer we can get it to the top the freer will be the transfer. I have felt that the pressure we have had is uncertain, and I wanted to get something that would go with a light touch, and go true, without straining, or hurting the parts.

The question of priority of rights with regard to the inventor of this process is one that has created considerable discussion, and while it does seem to attract, yet this feature should be of very little importance to us because, looked at from an unbiased standpoint, whoever did it is entitled to whatever is customary in such instances, and as litigation is now in progress to determine these rights, we need not concern ourselves seriously; but unkind criticisms have been voiced against those who seek to monopolize the process of this new departure. Such charges are in a broad sense unethical and unfair, as well as ungrateful; but even in a narrow sense the laborer, in this instance as well as any other, is worthy of his hire, and no one should reasonably censure the pioneer for claiming all that he believes to be his own. If evil combinations are attempted they will no doubt be found self-destroying,; a larger mental view as well as the moral shows us that. The affairs of men are yet subject to rigid order; that which is wrong can not continue, for every mistake carries with it the seeds of failure.

As for the claims that cannot be substantiated, the courts will have to be trusted to the end that the rights of all may be properly protected legally. But to the great majority of us the main point is, that casting gold, with its conveniences and possibilities, has come into general use and a new experience has come to us, opening a new field that elevates and perfects to the benefit of all. The matter of who is who in this instance is, and should be, out of our hands.

DISCUSSION OF THE PAPER BY DR. A. D. BLACK ON "A SYSTEM OF CLASSIFYING DENTAL LITERATURE, AND ITS APPLICATION IN SOCIETY WORK AND DAILY PRACTICE."

Dr. C. N. Johnson (Chicago):

The paper to which we have just listened is most impressive. It typifies the thoroughness and far-sightedness of the author, and it brings to our attention more vividly than we have ever had it before the possibilities of systematization. There can be no question as to the value of systematic reading, but systematic reading is not possible without a suitable index. The Dewey decimal system seems the most logical for our profession to adopt, and arranged as the essayist has suggested, it appears to cover the field most perfectly.

In the past men have repeatedly plagiarised without knowing it, because of their unfamiliarity with what has already appeared in print, and the almost impossibility of looking up the articles on any given subject. Not that there is any criticism of the practice of repeating ideas. Much repetition is necessary in certain cases to bring an idea home to the minds of the profession, but in every instance where an idea is repeated, due credit should be given to the original. With a systematized index for reference this can readily be done, and now that our post-graduate study courses are getting under way such an index is almost indispensable.

It would seem that there could be no argument against such a work and every argument in its favor, and the thanks of the profession are due to Dr. Black for bringing this matter to our notice. It is only in line with the thorough work he has done in other directions, all of which has tended to elevate the profession and make it more efficient.

Dr. A. E. Converse (Springfield, Ill.):

In the first place I wish to express my admiration for the plan presented by the essayist. It is comprehensive in scope and accurate in detail, and as such is characteristic of the man who has given it to us. Some one has defined a liberal education as classified knowledge. If this be correct the Dental Index contains within itself the elements of a liberal dental education.

Is the Dental Index of interest to the young man? It is if the young man is a reader, and if he is not a reader he should be. Dentists have the reputation of being poor readers. If this applies to the general profession it applies particularly to the young man. The young man fresh from school often feels that he wants to get away from the theoretical, and down to the practical part of his profession. He must not lose sight of the fact, however, that in the first years of his practice he will have more time to devote to reading than he will later on, and if he does not pursue some systematic course of reading by means of the Dental Index, or otherwise, he is very apt to lose some of the high ideals that have been instilled into him in college. These are the character building years in his professional life, and it is at this period that he elects to become a progressive dentist or an embryonic moss-back. If he intends to progress he must read, and read intelligently. Dr. Black is a reader or he never would have had occasion to develop the Dental Index. When the young man is called upon to prepare a paper he can quickly and accurately find his data by means of the Dental Index. Lastly, but not least, it might prove invaluable in furnishing suggestions for the treatment of some peculiar or troublesome case. To paraphrase a bible statement: "For what is a man profited if he shall gain the whole world of knowledge and lose his patient because he has not the particular knowledge to bring to bear on the case in hand?"

To sum up, I would say that the young man is fortunate indeed who is located where he has access to the Dental Index, and he should by all means familiarize himself with its use.

Dr. Harry F. Lotz (Joliet):

It has been my pleasure, as the appointed representative of your library work, to call the attention of the thirty-seven local librarians who compose the library force of this society to an editorial which appeared in *Items of Interest* of February, 1910—pages 137 and 138, which says among other good things: (1) "How many men ever read journals one, two or ten years old?' Yet surely all the knowledge printed in the dental journals of 1909 should not die with the dawning of 1910. It is not possible for the journals to reprint annually all that the dentist should have learned up to date, and if a man is to limit his journal reading to issues of the current year, how is he to share in the harvest already garnered?" So the Illinois State Dental Society has made a grand start towards assembling this material in thirty-seven cities throughout our state. We should not stop with the good work which has been outlined by others, but each librarian should gather together (2) "all books and magazines of every kind pertaining to dental subjects. (The older these are, the more valuable to the library. There are many old books, out of print, and which cannot be purchased, in the hands of dentists who do not especially care for them, that would become very valuable to any local library."

Libraries are a part of our educational system, and where it is possible great good can be accomplished by placing our dental books and magazines in city libraries, especially in those which classify their materials under the Dewey system; then if each component society would subscribe to the Dental Index Bureau, classified cards would be furnished which will fit into the card cases used in these libraries, and the books and index be ever ready for use.

Manual training is taught in the progressive city schools throughout our state. Book-binding, one phase of this instructive work, should interest every dental society and its librarian. Working in harmony with educational forces, our magazines could be bound substantially, by students, for something like twenty-eight cents (28c) a volume. And it is by working in harmony with all forces which tend to the education of the public that dentistry will receive its greatest reward, (3) "for the value of a library in modern thought is dependent upon its use by the largest number of readers. The work the books do is the measure of their worth."

So I trust that much good will come from this able presentation of this subject by Dr. Arthur D. Black, and that the dentists here assembled will go home enthusiastic for the Dental Index Bureau. Use your influence for this grand undertaking. Have your magazines bound, and if thought advisable place them in public libraries, then carry on the work of the post-graduate course as suggested by Dr. Black.

CONSULTED.

1. *Items,* February, 1910.

2. *Northwestern University Bulletin.* The Theodore Menges Library and Museum.

3. Editorial *Chicago Tribune.* Library Extension. February, 1909.

Dr. Marvin L. Hanaford (Rockford):

I have really nothing to say on this subject except that our society has made great and profitable use of the reports, as they appear in the *Bulletin.* They have helped us very much in our programs, and especially have they helped us in getting the younger men to take an interest in the programs.

DR. A. D. KYNER (Moweaqua):

I made mention the other night of an article and a man's name that I should like to find, but in the short time I had I couldn't wade back fourteen or fifteen years to find it. If I had had something of this nature I could have found it in a minute. No man can remember what has been written on different subjects through all the past years. He can't even remember where to find them. This index system supplies all this mental limitation and at once brings to hand the reference sought. The essayist had an object in bringing this subject before us. He was the moving spirit in inducing a number of us to join the state society six years ago. He knew that it was easier to increase the membership than to maintain the interest of the members. Many soon become indifferent and drop out. Others will attend meetings if you feed them. and too many are only wall flowers and take no part. To meet this known condition that exists in all sorts of societies and organizations, the essayist devised the post-graduate course of study, hoping to arouse the members' interest and maintain it in this most beneficial way. And now as a most valuable adjunct to the course, he offers the card index system to simplify and make easier the post graduate work and the preparation of papers, and I hope that the several component societies will make an effort to procure one of the systems. Because I believe that the salvation of the district societies lies in intellectual stimuli of its members. It's a sure cure for indifference, wall flowers and banquet feeders.

DR. J. N. CROUSE (Chicago):

To my mind this is the most important work that has been done, in a literary way, for the reason that it enables the man with a small library to get in a condensed form the different subjects that have been written upon. It must encourage study in young men outside of the study clubs. Supposing I had had this system when I was publishing a journal, what a help it would have been. This is an enormous work.

I was well acquainted with William T. Haas, commissioner of education, who died at Washington two or three months ago. He systematized the work at Washington, and made it very much easier and better; indeed, the best and most perfect library in the world. He was originally superintendent of schools in St. Louis.

This system ought to encourage the young men to get out and be something more than manipulators, and I think nothing has been done that will aid so much the cause of dental education as this.

Dr. Black (closing the discussion):

It does seem to me that if we are going to get where we should in the practice of dentistry, we will have to adopt better means for collecting the record of what is going on in dentistry. A commercial house makes it its business to know what other houses in the same line are doing; it doesn't make much difference what it costs, and if they do not know, they are going to drop behind. The time has passed when a man can subscribe for a few journals and read a few articles in those journals, and give his patients the best service. A man might as well try to practice all the specialties of medicine and keep up, as to practice all the different ramifications of dentistry and keep up, unless he has some systematic way of gathering in to himself the things that are being done by other men. Such a scheme as this enables a man, when interested in any one subject, to study that subject thoroughly and to know all about it. I want to present this to you as an easy and simple plan by which one can, with the least amount of reading, take to himself the best that there is in the literature of dentistry, and I believe that the adoption of systematic work will bring about a development in this state which will be markedly shown in the service which we will give our patients, and in the advancement of dentistry generally.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: C. N. JOHNSON, M. A., L. D. S., D. D. S.

Subscription price $1.00 a year, including postage, to all parts of the United States, its possessions, Cuba, Canada and Mexico. All other countries, $1.75 a year.

EDITORIAL.

HORACE FLETCHER IN CHICAGO.

On October 27, 1910, Mr. Horace Fletcher, the great apostle of thorough mastication, delivered a lecture at Orchestra Hall under the auspices of the Chicago-Odontographic Society, on "The Gateway to Health and Efficiency." The interest in the lecturer and the subject on the part of the public was manifested by the fact that fully 3,000 attended, and many were turned away after the hall was filled to its capacity.

The lecturer held his audience in the closest attention throughout, and at the close of the lecture he answered many interesting questions propounded by his hearers. The evening was a very profitable one in view of the fact that interest was aroused in the subject of oral hygiene, and an impetus given to the movement of caring for the teeth of the school children of Chicago by a public announcement of the fact that a committee had been appointed by the Chicago Odontographic Society for this purpose. The time seems ripe for an effective campaign along this line, and it is expected that before many months a propaganda of education and free service of somewhat extensive proportions will have been inaugurated.

On the evening following the lecture Mr. Fletcher was dined by some of the members of the society at the Chicago Athletic Club, and there was naturally some curiosity to see how he would masticate. The editor was placed in such a relation to the guest that he could observe somewhat accurately the process, and he received the surprise of his life. He had been led to believe that Mr. Fletcher's method of mastication involved the expenditure of considerable time. The first course was oysters on the half shell, and Mr. Fletcher's shells were minus their oysters before the editor had reached the half-mile post. He thought his eyes had deceived him and watched more carefully when the thick soup came. He saw the distance flag fall upon him again, and pushed back his plate half filled with soup, ignominiously beaten to a standstill. And so it went throughout the meal, Mr. Fletcher partaking of every course except the meat. This was a revelation. But be it not thought that Mr. Fletcher bolts his food, or that he eats like most other men. He does not.

There is something about Mr. Fletcher's method of mastication that has never been properly described, so far as the editor has seen, and he has read much about it. The statement is always made that mastication should be continued till the food is almost liquid and will practically swallow itself, and emphasis is laid on chewing it till the taste is extracted from it. This would naturally imply long-continued mastication, but in the intelligent application of the process this is not necessary. It would be better to state that on taking the food into the mouth the chief effort is concentrated on searching out every minute particle with the tongue and tasting it. In doing this it will be found that the tongue is very active and it really becomes a most important factor in the process of mastication. In the deliberate attempt to taste, the tongue forces its way through the food and crushes it against the lingual surfaces of all the teeth, upper and lower, and thus a large mass of food is being comminuted at once. Then, again, this concentration on the taste stimulates the salivary glands and a flood of saliva is poured into the mouth, which rapidly liquifies the food and it is swallowed in spite of the individual. This is an explanation of Mr. Fletcher's statement that the food should be chewed till it swallows itself. It will be found impossible not to swallow frequently when the food is prepared in this way.

The deliberate tasting of every particle of the food prevents the swallowing of any portion which may be tainted or in any way unwholesome, and thus nothing goes into the stomach which is deleterious. There is much of the meat furnished consumers which will not stand this test, and this accounts for the fact that Mr. Fletcher and his disciples largely eschew a meat diet.

Much more might be said regarding Fletcherism, but our readers must be left to peruse his lecture, which will appear in an early issue of The Dental Review.

THE DENTAL REVIEW FOR 1911.

If we can keep this magazine up to the mark we have set for it in 1911 we shall indeed be fortunate, and our readers will be happy. We have much good material already on hand and there is more in sight, so that we confidently believe that the year just ahead will prove of exceptional interest to our subscribers. When it is remembered that 25,400 pages of reading matter have appeared in The Dental Review since it was established in 1886, and that most of this is material not previously published, it will be seen that this journal has made a very substantial addition to the volume of our periodical literature. The founders of the magazine builded better than they knew, and the steady success of the publication is largely due to the impetus they gave it in those early days. It is secure now in its reputation for all that is new in dentistry, and we hope during the coming year to add to this reputation in a very substantial manner.

THE EDITOR'S DESK.

LETTERS TO A BEGINNER.

(Letter No. 3.)

My Dear Boy:

I hear you are matriculated in college and have taken your place with the freshmen class. Now let me tell you something. You are not the whole thing in that school, but if you are worth a picayune you are part of the thing, and a very important part. Just wait a little and see where you fit into the machinery of the class and the school, and then fit in and stay fit. Do not try to run the institution—at first. You may find many things in which you could improve it, but wait a bit and see if perhaps it may not be you who needs improving. It has been my good fortune to see young men improve considerably during their stay in college, and that without changing the institution very much either. Do not try to be the biggest boy in your class, but by all means be one of the boys of the class. Do not congregate alone—if you do you will have too much company of a certain kind for your own good. Mix with the boys and help. Put in most of your time in the first few weeks helping, and then the next few weeks helping some more, and then the rest of your college course helping still more. By this time you will have formed the habit, and it is wonderful what an amount of happiness you can get out of the habit of helping. If I were asked to write a short prescription for happiness I should write, "help others." And it will pretty nearly bring results, more nearly than will most of the prescriptions that are written.

Identify yourself closely with the interests of your class, and do all you can to develop a class spirit. If trouble arises between your class and either of the other classes try your very best to harmonize the warring elements and avoid a clash, but if a clash comes in spite of you, then cast your fortunes in with your class and stand by the boys till the last shred of clothing is torn from your back. When it is all over, shake hands with your antagonists and vote the incident closed. Do not nurse a grudge.

Remember you are unconsciously forming friendships which will last a lifetime, and my advice to you is to cherish your college friendships, and do not think lightly of the ties that bind you to the boys. You cannot know at your age how precious are the memories of college associations after these associations are long since severed, and I beg of you to make the most of them while you have the opportunity. I can look back fondly now upon my own college career, more than a quarter century ago, and recall with moistened eyes some of the dear fellows who sat beside me in the lecture room and worked beside me at the chair, but at the time I did not realize the full significance of those delightful associations. If I had that period of my life to live over again I would make more of it.

Do not be dismayed at the awful words some of the professors are using. It is not profanity—these men are not given to swearing in that off-hand fashion—but it is merely some of the foolish anatomical, physiological and technical terms which were invented, I am sure, solely to try the mettle of such young fellows as you. You will grow accustomed to them in a wonderfully short time, and if you have had some Latin preparatory to going to college they will come all the more easily. At first when they seem to stagger you with their uncouthness and their horrible irrelevancy to anything connected with the practice of dentistry, just console yourself with the fact that hundreds, yes thousands, of young men have gone through it alive before you, and that every blessed one of them had the same impressions that you have when they listened to the first few lectures. It is just barely possible that the men who formulated the curriculum for a dental college knew more about the requirements of the case than you or I do, and that these studies form the basis of what is to be the applied science of your practice later. In any event you will be astonished to see how quickly you will become accustomed to these terms and be able to realize their true significance.

Attend lectures and quizzes regularly. Keep up with the procession. To get behind is not necessarily fatal, but it is a bad symptom. If through any inadvertence you should fall behind, do not rest—at least, do not rest very much—till you get caught up. And when you get caught up, stay caught. Your normal place is at the head of your class instead of the foot, and if you drop in the rear it is a pretty good idea for you to blame yourself for it. That is much better than to blame the institution, or the professors, or the other students—besides it is more practical. If the fault is yours, you can remedy it; if it is that of the institution, it is more difficult. I have known the best energies of an entire faculty to be exerted toward remedying some fault, with very discouraging results, so you had better try something easier till your pinfeathers are a bit firmer.

It is about time now for you to begin to study the amenities of the social fabric of our modern civilization. I mean by this that, as a prospective professional man, you should know how to deport yourself in good society. Not that I want you to go into society very much—not enough to hurt. The man who develops too much social ambition is likely to neglect some of the more essential things of life, something that makes for substantial happiness more than dances or receptions or spring teas. But a professional man should always be a gentleman, and to be a gentleman one should be familiar with all of those little courtesies which mark the man of good breeding and culture. And the essence of it all is kindness, politeness and consideration for others. Especially when in the company of ladies be on the alert to show them every possible attention without being obtrusive or effusive. If you are dining out—and I hope you will have an opportunity of doing this occasionally while in college—and you are to be seated beside a lady, help her to her seat before you sit down yourself. There is no hurry so far as you are concerned, and you should see that she is made comfortable in her chair. Draw a careful line between your deportment in dining with a lady and the center-field football rush tactics you see employed when scrambling for a stool at a lunch counter. There's a difference, and you are in danger of scrambling to your meals so much that you forget that there is any other way of dining.

Never overlook a glove or handkerchief dropped by a lady—bless their hearts, they are forever dropping them—but do not let the fact be apparent that you are watching for such things. Learn to be unobtrusively polite and considerate, and you will be welcomed everywhere.

Now I am about to surprise you a bit, but it will not do you any harm. I think most young men recognize the deference which is due to women, even if they are not always thoughtful enough to carry it out, but I am afraid the average young man of today fails in the consideration which is due from him to the men who are older than he is. Young America—heaven bless him—is for the most part too impressed with his own importance to ever stop to think he is under the slightest obligation to show deference to any mere male man, even though that man may be old enough to be his grandfather. And yet in all the category of manly qualities there is nothing more beautiful than to see a boy jump to his feet, raise his hat and offer his seat to an older man in a street car. We rather look for him to do it if the passenger is an old lady—though we are sometimes disappointed even in that—but when this courtesy is shown to a man, it is so unusual and so delightful that we are impressed by it. I vote a young man safe who is constantly looking after the comfort of the aged, who sees that an old man or woman has the easiest chair in the room, who never allows an overcoat or wrap to be put on without tendering assistance, who rises to his feet the moment a woman or elderly man enters the room, and remains standing till the elderly one is seated, and who does it all not through affectation, but from a generous-hearted spontaneous desire to be useful and helpful in the world and make other people happy. The boy who starts early in life to make others happy is my kind of a boy, and that is the kind I want you to be.

Sincerely yours, THE PRECEPTOR.

CORRESPONDENCE.

COMMENTS ON THE LETTER OF DR. KELLS, SEPTEMBER DENTAL REVIEW.

Pasadena, California.

My Dear Editor of THE DENTAL REVIEW:

Having been behind hand with my reading, I have just now cast my eye on the letter of Dr. Kells, in the September number of THE DENTAL REVIEW. It is excellent reading. I enjoyed it and agree with it nearly all. But in the following paragraphs there is that I cannot let pass without objection:

"Any man who has by twenty-five or thirty years of good gold foil work gained the confidence of the public, might change to some slightly inferior method and still travel upon his good reputation for a long time.

"Take myself, for example. Suppose I were to discard gold foil fillings from tonight. Tomorrow morning a patient comes in and, instead of inserting a gold foil filling, as I would have done today, I merely state that I will put in a modern (?) gold inlay instead of an old-fashioned filling, hammered in!

"My patient considers me progressive and is all the better satisfied. She does not know that I could put in a gold foil filling in less time. She does not know (fortunately) that the foil filling would probably last longer. Happily she does not know how much good tooth structure must be vandalized for the inlay—which would be unnecessary for the foil filling.

"How should she know all this? So she would become of the public who believes it is being 'served better than of old.' So much for confidence."

In the first place, no one but an utter extremist, whose judgment is, in my opinion, erratic and unbalanced, would think of abandoning foil fillings, no matter how enthusiastic he might be on the subject of inlays. Common sense would direct that nearly all of the smaller cavities anywhere, and almost without exception cavities in anterior teeth, where gold is permissible at all, should be filled with foil or one of the various forms of crystal gold.

It has never seemed to me that in order to be progressive and adopt new methods, one had to become necessarily what Josh Billings and our friend Cushing used to denominate a "damphool."

There is no question and there never will be, about the superior quality of gold fillings "hammered in." The accumulated evidence of half a century admits of no controversy on this point.

For example, I have had as a patient here in California a lady, recently deceased, a daughter of Dr. W. H. Atkinson, of New York, who had in her molars gold fillings inserted more than fifty years ago, some by her father and others by Dr. Varney. Of course, they were simple occlusal fillings. There is little cause for doubt that if such fillings had been placed in molars of Methuselah while he was young, say at the age of a hundred, they would have stayed with him to the end of his brief existence.

Dr. Kells says: "She (the patient) does not know that I could put in a good gold foil filling in less time." Of course she doesn't know it, for in any case adapted to the inlay it would not be true. Take for example a broken down lower bicuspid, such as I had yesterday; one that demanded restoration distally well around and beneath the gum and over at least one-half of the occlusal surface, with the extension into the anterior pit of the same. Amalgam? No, no; my soul rebels; wouldn't yours. Would you feel proud to see it a few years hence? If you were in heaven wouldn't it mar your bliss to imagine some other dentist looking at it while the patient explains, "that was put in by old Dr. Blank"?

Could I build it up, make a restoration with gold foil, "hammered in"? You bet I could, but I won't. I know better. I shall have too much consideration for my patient. She remembers going through the "hammered in" operation with this same tooth a few years ago, at the hands of a dentist of high repute. She doesn't blame him because she has "hammered" out the filling recently with a chicken bone or hazelnut. But she would dread extremely a repetition of the hour or more of rubber dam, saliva ejector, slimy cheeks, throat mucus, sympathetic lachrymals, four thousand two hundred blows of the hammer, and last, though not least, the grinding and polishing, tape under the gums and subsequent rawness.

Also in addition to these items I shall have a little consideration for myself. Why should I undergo the strain, possibly unfit myself for further work today, when I know of a better way, easier for myself, incomparably more pleasant for my patient, and that promises equal if not better results than could be obtained with the best foil filling possible.

Bear in mind one thing, the gold fillings of so many years oft referred to are nearly all of the simple occlusal variety, or more rarely proximal in front teeth with free spaces—*not proximal fillings in bicuspids and molars.*

Again the doctor says: "Happily, she does not know how much good tooth structure must be vandalized for the inlay—which would be unnecessary for the foil filling." Wrong again. It is never necessary to remove any part of the tooth structure for an inlay that ought not to be removed to secure proper restoration by any method whatever. The fact is that the inlay has done more to impress and emphasize correct principles of cavity formation than anything else ever said or done. A cavity prepared for an inlay is practically the same in every instance that it should be for dependable restoration either with gold foil or amalgam.

The answer of my objector will be that the preparation for the inlay requires that the wax impression must "draw," or more properly, be drawn, so as to preserve its form intact, whereas in preparation for foil or amalgam undercuts may be left, and overhanging tooth substance preserved. I will answer that in any case where an undercut is permissible or an over jutting wall *should* be left the undercut may be filled with cement and the walls paralelled for the inlay impression.

If anyone will study carefully the cuts and diagrams of cavity preparation as put forth by our first authority in such matters, Dr. Black, he will discover that in every instance the formation for metallic fillings is almost ideal for inlays in corresponding situations. There is the same flat base, parallel walls, beveled margins, the removal of all projections of doubtful strength, "extension for prevention." In this connection the chief error consists *not* in vandalism for the *inlay,* but in faulty preparation nine times out of ten for the filling. Walls are left that should be removed; cusps weakly supported are sentimentally allowed to remain that should be cut off, down, down to a solid base, to "bedrock," for the due support of a metal substitute.

Returning to consideration of the lower bicuspid before mentioned: Having prepared the cavity with chisels, stones and fissure burs (in the contra-angle hand piece), kept cool by water dropped continuously by my assistant, with no pain to the patient, I proceed to take the impression. As usual, I employ the "Ivory" matrix to secure form and resistance, for we must in every case be able to press the wax into every groove, and over every margin. Cool, remove matrix, go over all margins with trimmers and burnishers just slightly warmed. Touch the occlusal surface with a bit of warm air and have the patient close the teeth. Be sure the occluding teeth are wet; trim, burnish, chill, remove with a deeply inserted fine point (a stiff explorer is good), reinsert, go over margins again, remove, attach sprue and proceed to invest.

As a last step, however, previous to investment I go over the cavity side of the wax impression with sharp spoon excavators, or burs with the engine, so that the cement shall have here and there a better grip, and to make sure that the fit shall not be so close as to prevent the *edges* of the inlay coming absolutely to contact with the enamel margins.

This may sound complicated and full of detail to the uninitiated, but it can all be done in much less time than it takes me to write the description.

As to the casting, I hardly know what it is nowadays to have a failure, using Ransom and Randolph's "suction" machine, and gold nearly pure —22k. scraps mixed with pure gold.

Without going into further details, I will say that the inlay having been inserted and edges duly burnished, I wish that Dr. Kells might examine it and look for the "cement line." I think he could hardly detect an edge-line that would not pass for that of a gold filling "hammered in."

As to durability—of course we have not fifty years to fall back on for evidence. As to cast inlay, every process must have its beginning. But we do have the evidence of fifteen or twenty years for the inlay, as made with the burnishing method by Dr. Ames, of Chicago, and others. And I know that their work has "stood up." I have been putting in cast inlays for several years, at first with very imperfect appliances. There must have been a good many scores of them, and so far as I know, not one has failed yet. Any one may be successful if he will but remember that there are no unimportant details. Here as elsewhere, "If you do not take pains, pains will take you."

And let me say in conclusion, the cast gold inlay is not the enemy or antagonist of the foil filling; it is rather the adversary of amalgam; also of the "shell" crown, in places where real vandalism is so often perpetrated to give it room.

Garrett Newkirk.

PRACTICAL HINTS DEPARTMENT.

Edited by J. E. Schaefer, D. D. S.

[This department is for busy readers. We want short articles containing practical hints—the shorter the better. No article must exceed 200 words, unless of exceptional merit. Every dentist has some useful hint that has been of value to him, and if he will only put it in print it may be of equal value to others. That is what this department is for. Due credit will be given for every article sent. Address J. E. Schaefer, The Dental Review, 55 State street, Chicago, Ill.]

An Aid in Obtaining the Correct Bite:—Have the wax on the base plate trimmed properly, and then while standing behind and to one side of the chair, press inward with slight pressure upon the mandible at a point just anterior to the angle. Then request the patient to "close the back teeth." These three factors will draw her attention to the posterior teeth and she will almost invariably close the jaws without protrusion of the lower.—H. F. Watts, Melvin, Ill.

To Mix Inlay Investment Compound Without Waste:—Place ring on crucible former. Fill not quite full of water and pour quickly into rubber bowl. Sprinkle in sufficient investment material to take up water, which will be found just enough to invest wax model.—*A. G. Loomis, Chicago, Ill.*

A Use for Carborundum Stones:—I clean and smooth my rubber plates with carborundum stones instead of vulcanite files, which saves time. There is less liability to break the plate and easier to reach the difficult angles and corners of the plate.—*M. H. Diratsouyan, Oklahoma City, Okla.*

Formocresol as a Dehydrating Agent:—I have had excellent results from the use of Formocresol as a dehydrating agent. Besides shrinking and hardening the pulp to facilitate in its removal, it gives one a feeling of security as regards aseptic condition of the canals.—*F. F. Molt, Chicago, Ill.*

A Hint in the Use of the Steele's Facing:—When using Steele's interchangeable facing and backing for crown or bridge work, after you remove the facings and do your soldering of the parts (backings) do not try the facings on the backings for 25 or 30 minutes, no matter if you have cooled the case by throwing it into water or not; the backing and the lug is expanded by heating, and it takes time to resume its normal size so the facings slip on the backing without difficulty.—*M. H. Diratsouyan, Oklahoma City, Okla.*

A Hint in Extracting Roots:—Teeth that are badly decayed under the gums can be easily extracted by boring or enlarging the root canal and setting in a small steel screw; with this firmly set in the root you can soon wiggle it loose, leaving a clean socket without lacerating the gums. The supply houses have an instrument for this purpose, but they are too blunt, and the thread wears off and soon becomes dull.—*W. F. Reber, Chicago, Ill.*

A Rubber Plate Repaired Without Vulcanizing:—A case where a molar or a bi-cuspid is broken from a rubber plate. Cut square, box-like cavity in rubber underneath where tooth is broken; select diatoric tooth to properly fit the case, or if necessary you may grind tooth some. Press warm inlay wax into diatoric tooth, leaving a portion of the wax extending. Warm portion extending slightly and press tooth to place. Chill and remove with inlay wax in tooth. Trim any excess wax, warm slightly and press to place again. Remove and invest tooth and wax and cast acolite directly into tooth and cement to place on plate, consequently plate is not weakened as it would be by running through the vulcanizer.—*S. G. Barker, Jefferson, Ia.*

To Control the Fracturing of Plaster in Taking an Impression: — In taking a plaster impression where two teeth are inclined towards each other, forming a decided dove-tailed undercut, one can control the fracturing of the plaster in the following manner: Take a piece of cardboard, such as calling cards are made of, trim it to the outline of the undercut and wedge it between the two teeth that are inclined toward each other. If properly shaped the cardboard is rigid enough to remain in place while mixing the plaster and taking the impression.

The tray should be vaselined and as soon as plaster is hardened sufficiently slip off, and with a dull knife or wax spatula cut along center of impression to cardboard. If cardboard has been extended well to the occlusal surface of teeth, it will not be necessary to cut very deep; with a little pressure along the center of impression it will divide into two parts; one can then be lifted out lingually and the other labially, then waxed together in their proper relation.

This is not necessary in very many cases, but occasionally we meet with a condition where the crowns of the teeth are exceedingly long and the plaster fractures in every direction except the one we desire.

I have found this is a help in taking an impression for a lower partial denture and occasionally in bridge work.—*J. E. Schaefer, Chicago.*

Some Advantages of Casting: — A desirable feature in the combination gold and porcelain crown or bridge is the avoidance of subjecting the porcelain to the weakening influence of expansion and contraction of metals and sudden changes of temperature incident to soldering or casting direct to the porcelain. Casting offers decided advantages in this respect over other methods, making possible at the same time the employment of facings, saddle-backs, countersunk, diatoric, rubber teeth and loose pin crowns, or in fact any form of tooth now on the market may be used successfully, thus giving us an unlimited selection; and while casting may be made direct to all of these different forms of teeth without apparent injury, it is also true that most of them may be made detachable, thereby securing the cemented porclain in the finished product, an advantage well known to all of you and conceded to by everyone who has given the matter any thought.—*F. E. Roach, Chicago.*

How Pyorrhea Alveolaris Is Brought About:—First the predisposition for the formation of tartar; the tartar present, by a constant irritation, causes traumatism, a chronic inflammation. We know that of all parts of the body the mouth is the most appropriate for the cultivation of microbes, and especially pus forming ones. When the resistance of a tissue has been weakened by this irritation and consequent inflammation, it can no longer fight against the intrusion of microbes, and then we commence to have a process of chronic necrosis, which goes deeper and deeper. When the most resistant parts, the dental ligaments, are destroyed, then the progress is much quicker. The formation of pockets takes place, where the microbes are no longer disturbed, either by mastication, which mechanically cleans the teeth, or by the brush, which can no longer reach them. When the periosteum is attacked the tooth becomes looser and looser until in course of time it inevitably has to come out.—*B. Kritchevsky, Paris.*

The Technique of Investing as Given by Dr. Taggart:—In an ordinary plaster bowl place a certain quantity of water (it should be pure water), the quantity depending upon the amount of investing material needed to fill the flask you are using; into this water sift the requisite amount of investment compound, and with a spatula stir to thoroughly mix. Then, inclining the plaster bowl to one side, tap it on a bench or table and slowly rotate. This will cause the material to spread itself in a thin coating over most of the inner surface of the plaster bowl and will cause an elimination of most of the air contained in the mixture. Continue this tapping and rotating until you are satisfied most of the air is out.

The wax model having been previously mounted on a sprue and crucible former, is now carefully coated with the investment material. Now thoroughly cover the model, sprue and crucible former, then carefully place the flask and fill to excess with investment.

Holding the crucible former or lid securely on the flask, invert it onto a glass slab and slowly and carefully press it down so that the investment material will thoroughly pack around the model, slide the flask off the glass slab, now over a little more investment material on the slab, press it down again and slide off again; repeat this several times to make sure it is well packed.

A small hole through one side of the flask about 2 mm. in diameter is of advantage in that, as the flask is pressed onto the slab, the excess comes out of this hole and any air that may have been caught while investing will often be gotten rid of through this hole, as the excess of material runs out through it. The last time pressure is brought on the investment place your finger over the hole; this will make it pack more solidly.

Care must, of course, be exercised, and the work must be rapidly done, so that the investment material does not get too stiff. Now, carefully dry and burn out the wax. Do not overheat the flask, after it is thoroughly dry, let the flask cool and then make the casting.—*G. W. Dittmar, Chicago.*

MEMORANDA.

ALUMNI MEETING.

The Alumni Association of the Marquette University, Department of Dentistry, will hold its fifth annual meeting at Milwaukee, Wis., January 17, 18, 1911.

SOUTHWESTERN NEBRASKA DENTAL SOCIETY.

The seventh semi-annual meeting of the Sooüthwestern Nebraska Dental Society will be held at McCook, Neb., Feb. 23.

W. A. McHenry, Secy.

NATIONAL INSTITUTE OF DENTAL PEDAGOGICS.

The annual meeting of the National Institute of Dental Pedagogics will be held in Washington, D. C., December 27th, 28th and 29th, 1910.

John Q. Byram, President.

ALUMNI, DENTAL DEPT., UNIVERSITY OF SOUTHERN CALIFORNIA.

The annual meeting of the alumni of the Dental Department of the University of Southern California will be held the third week in December. The entire day will be devoted to clinics and exhibits. Preparations are now under way to make it a grand success. A large attendance is expected, as all practitioners are cordially invited. Programs will be mailed in the near future.

C. J. R. Engstrom,
Sec'y and Treas.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The semi-annual meeting of the Wisconsin State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the state of Wisconsin, will be held at the Wisconsin College of Physicians and Surgeons, corner Fourth street and Reservoir avenue, Milwaukee, beginning Monday, January 15, 1911, at 9 a. m.

For application blanks and general information address,

G. C. Marlow, Secy.,
Lancaster, Wis.

SOUTH DAKOTA STATE BOARD OF EXAMINERS.

The South Dakota State Board of Examiners will hold its next meeting at Sioux Falls, S. D., January 10, 1911, beginning at 1:30 p. m. and continuing three days. All applications for examinations, together with a fee of $25 must be in the hands of the secretary by January 1st. Applicants who have not complied with the above will not be permitted to take the examination. For further information, blanks, etc., address

Aris L. Revell,
Lead, S. D.

ANNUAL CLINIC.

The G. V. Black Dental Club of St. Paul, Minn., will hold a mid-winter clinic in this city on Feb. 16-17, 1911.

A very interesting program is being arranged. Operations will be made and papers read by prominent members of the profession. Full program will be published later. The profession generally is invited to attend this meeting.

For further information address,

R. B. Wilson, Secy.
Am. Nat. Bank Bldg.,
St. Paul, Minn.

RESOLUTIONS PASSED UPON THE DEATH OF DR. E. D. BROWER, BY THE IOWA STATE BOARD OF DENTAL EXAMINERS.

Dr. E. D. Brower, secretary of the Iowa State Board of Dental Examiners, was born in Leesville, Carroll County, Ohio, January 15, 1858. He began the study of dentistry in 1878, with Dr. J. K. Morrison, at Ackley, Iowa, and the following year entered Ann Arbor and was graduated from that school in 1881. He immediately began the practice of dentistry in Le Mars, Iowa, continuing there until the time of his death. Dr. Brower was a man of no mean ability and always enjoyed a place in the company of those who were "doing things" in dentistry in Iowa. He was a genial, warm hearted friend, a man who had the interests of the profession very much upon his heart, and who helped in the making of history in his state. He will be greatly missed in state and local societies, as well as from the Board of Dental Examiners. Dr. Brower suffered a stroke of paralysis, April 17th, from which he never recovered. Death came on Monday, October 10th, and released him from bondage to a disease that would doubtless have kept him a cripple to the end, no matter how prolonged that end might have been.

Dr. Brower has been our efficient secretary for many years, and,

Whereas, It is our firm conviction that, in the death of Dr. Brower the Board of Dental Examiners has lost a faithful and efficient secretary, and the dental profession of Iowa a valued and tireless worker for its advancement,

Be It Resolved, That we do hereby express our personal loss at his removal from our circle and, in this manner, convey to the profession at large our appreciation of his services in the interest of higher dentistry, and to his bereaved wife and daughter our sincere sympathy in their hour of sorrow.

(Signed.)

F. H. Rule,
J. A. West,
G. N. Beemer,
T. F. Cooke.